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MEMORANDUM

TO: Roy Crossland, Acting EPA/DPO

FROM: Durand Reiber, E & E/TATM DR

THRU: Joe Chandler, E & E/TATL JCC

DATE: February 2, 1993

SUBJECT: Mid-America Refinery Company, Chanute, Kansas
TDD: TO7-9211-001
PAN: EKS0368SAA
CERCLIS ID#: KSD084091545
EPA/OSC: Carl Bailey

INTRODUCTION

The Ecology & Environment, Inc., Technical Assistance Team (TAT) was tasked by the U.S. Environmental Protection Agency (EPA) Emergency Planning and Response (EP&R) Branch, under Technical Direction Document (TDD) TO7-9211-001, to conduct a site assessment at the Mid-America Refinery site in Chanute, Kansas. Specifically, TAT was to collect preliminary data for use by EPA in conducting a removal assessment at the abandoned oil refinery, including environmental sampling, a cursory inventory of chemicals and wastes remaining in the buildings, sampling of tanks and lagoons, hazardous waste sampling/characterization of unknowns, and documentation of site conditions. TAT member (TATm) Durand Reiber was assigned as project manager for the site assessment.

BACKGROUND

Location: The Mid-America Refining Company (MARCO) site is located just outside the city limits on the north edge of Chanute, Kansas, northwest of the intersection of West Hickory Street and US Highway 169 (Figure 1: Site Location Map). The legal description for the facility is: the NE 1/4 of the SE 1/4 of Section 17, Township 27, Range 18E. The site comprises approximately 29.6 acres of land, with dimensions of 993 feet north to south, by 1320 feet east to west (Figure 2: Site Map) (Ref. 1). Chanute, located in Neosho County, has a population of 9,488, according to the 1990 census.

History: According to a site investigation (SI) report by the Kansas Department of Health and Environment (KDHE), MARCO operated as a crude oil processor from 1934 until it shutdown in February 1981. During full production, MARCO processed approximately 2,800 barrels per day (bbl/day) of crude stock (one barrel is equal to approximately 42 gallons). This stock was refined into 350 bbl/day of diesel fuels, 550 bbl/day of jet fuels, and 700 bbl/day of gasoline, oil and kerosene. The

remaining crude bottom products were used to make asphalt (Ref. 1). A total of 99 tanks are presently on site (91 aboveground and 8 underground), with volume capacity ranging from 5 to 34,000 barrels.

MARCO was originally owned and operated by Petroleum Products Company, Inc. In 1943, the Missouri Farmers Association Refining Company bought the site and operated it for approximately 13 years until it was sold to the Mid-America Refining Company of Chanute, Kansas. MARCO operated at full production until the facility was sold to Kemco Petroleum Company, Tulsa, Oklahoma. In 1980 Producer Group, Inc. bought the facility. Shut down of the facility occurred in 1981. The site was then purchased by Chanute Engineering and Refinery Company. On July 1, 1985, 4.6 acres of the northwest corner of the site were sold to Fairway Crude, Inc., a crude oil purchasing company (Ref. 1).

The site has remained relatively inactive since 1981, although several attempts have been made to sell and restart the facility. The most recent attempt was on February 1, 1986, when 25 acres of the original site were leased to the Rose Chemicals Company. Rose Chemicals' plans included the development of a PCB destruction plant and reactivation of the refinery. The plans were never initiated due to public opposition (Ref. 1).

Surface Geology: According to the US Department of Agriculture's Soil Conservation Service, the surface geology of the site consists of the Bates loam, approximately 1 to 4 feet thick, and the Osage silty clay. The Bates loam is a gently sloping, well-drained soil, which is moderately permeable. It is located on tops of ridges in the uplands. The soil generally contains 15 percent clay material and has an average rating for surface runoff. The Osage silty clay is a nearly level, poorly drained soil located primarily on flood plains. It has a slow rating for runoff (Ref. 1).

Hydrology: Surface drainage from the site flows into an ephemeral tributary, which empties into the east-west trending Village Creek, which is part of the Neosho River Basin. The Neosho River is the primary source of drinking water for the City of Chanute. The public water supply intake is approximately 5 miles downstream from the site.

Local precipitation is the most important source of recharge to the aquifers in the Chanute area. The mean annual precipitation for Chanute is 39.1 inches. Lesser amounts are contributed to these aquifers by influent seepage from tributaries and rivers and by subsurface inflow from adjacent areas. Recharge is very seasonal and water levels variable, with lower water tables recorded in the dry winter months. Area well depths range from 12.5 feet (monitoring well on Fairway Crude property) to 128 feet (an off-site irrigation well). Static water levels of four monitoring wells installed on the site by KDHE in 1986 were reported to range between 3.54 and 5.0 feet (Ref. 1).

Investigative History: The KDHE Bureau of Environmental Remediation (BER) conducted an intensive file review and performed a preliminary assessment and site investigation (PA/SI) for the facility. The PA, conducted on February 2, 1986, visually identified several areas of possibly contaminated soil around the oil-separator unit and storage tanks and a pool of hydrocarbons was observed, apparently from a leaky valve and/or pipe.

The SI, conducted in September 1986, included outdoor air monitoring for organic vapors and explosive atmospheres; the installation of four on-site monitoring wells; ground water well sampling; limited sampling of soil, sediment and sludge; and surface water sampling. The SI did not include an assessment of the buildings or their contents.

The results of the SI confirmed the presence of ground water, surface water and soil contamination (Appendix D: KDHE SI Conclusions and Recommendations). In brief, the results indicated that ground water contamination, composed of refined petroleum products, is migrating in a southeastwardly direction, following the ground water flow beneath the site. On-site surface water drainage flows easterly, downhill towards Highway 169, and accumulates along the eastern edge of the property, both on and off site. Surface water samples indicated the presence of hydrocarbons. Runoff from the site is uncontrolled and flows into a tributary of Village Creek. Surface soil contamination was visually observed in several areas throughout the site; analysis indicated soil in these areas to be slightly to heavily saturated with hydrocarbons. The overburden materials encountered during drilling activities generally consisted of cohesive materials of clay and silty clay, and a variety of artificial materials, consisting mainly of fly ash, building debris, refinery wastes and disturbed soils.

As part of the SI, a Hazardous Ranking System (HRS) score of 14.25 was calculated for MARCO, which is below the EPA's threshold score of 28.50, which would require a site to be considered as a National Priority Listing site (Ref. 1). The scoring apparently did not include the hazards presented by the chemical products and the condition of their containers remaining inside the accessible buildings, including those that were leaking, and the potential airborne contamination.

In conjunction with the SI, a tank evaluation survey also was conducted by KDHE with the assistance of a former plant manager. The purpose of the survey was to determine each of the 99 tanks' former use, construction type, present condition and contents, and diking. It was estimated that a total of 187,165 barrels of product could be stored at one time at the MARCO site. The integrity of most of the tanks was reported to be fair to good, however, approximately 40 percent of the tanks had inadequate diking. One 500-gallon horizontal concrete tank that had contained crude oil was reported as containing fluids. The remaining tanks were reported to be essentially empty, possibly containing small amounts of bottom sludge (Appendix D: Tank Evaluation on Mid-America Refining Co.).

On October 9, 1992, KDHE/BER again visited the site for the purpose of conducting an assessment of present site conditions and a limited inventory of potentially hazardous substances remaining in 10 of the site's buildings and sheds. A video tape was included in the documentation. Results indicated that numerous marked and unmarked containers of a variety of substances were located throughout the refinery's buildings, particularly in the abandoned laboratory buildings. Many hazardous substances, including corrosives, flammables and poisons, were noted. Buildings were reported to be in a dangerous state of decay and fully accessible. Although most of the site is fenced, it can be easily entered along the north boundary (Ref. 2).

ON-SCENE ACTIVITIES

November 16 through November 18, 1992:

The preliminary removal assessment was conducted from November 16 through 18, 1992, by four members of TAT (Durand Reiber, team leader, and Scott Hayes, Buck Brooks and Dave Kinroth). The On-Scene Coordinator (OSC) for the site was Carl Bailey. Keys to the front gate of the site and to the KDHE monitoring wells were obtained from Bill Thornton of the Chanute KDHE field office. Following a safety meeting and site reconnaissance to familiarize the TAT with the 29-acre site, the following tasks were completed among two field teams. Photographic documentation of site conditions and most sample locations is included in the attachments.

Well Sampling: Well purging and sampling of the four KDHE monitoring wells installed to monitor the potential contamination of ground water under the site was begun on November 16, 1992. Three wells (MW1, MW3, and MW4) were located on site and one (MW2) was sought east of the site, across Highway 169 (Figure 3: Sample Locations). After unsuccessful attempts to locate the off-site well, TAT was informed by Thornton that MW2 had been decommissioned and capped.

Wells were purged and sampled in the order of the least contaminated to the most contaminated, based on previous KDHE sample analysis. Immediately upon opening each well, organic vapor readings of the well headspace were taken with an organic vapor analyzer (OVA), as well as initial pH, temperature and conductivity readings. Each well was purged of three well volumes when possible. Temperature, pH and conductivity readings were taken during purging and at the time of collection. When possible, samples were collected immediately after purging, although slow recharge necessitated the sampling of MW1 the following day. Hand bailers, which were decontaminated between each sample were used for purging and sampling. A rinsate sample of one bailer was collected between samples to check for adequate decontamination. In addition, one duplicate well sample was collected.

For semi-volatiles analysis, each sample was collected directly into one 80-ounce amber glass jar. Volatile organic analysis (VOA) samples were collected directly into two 40-milliliter (ml) VOA vials and placed in cubitainers with charcoal thimbles. All water samples were placed in iced coolers; VOA samples were additionally preserved with hydrochloric acid.

Surface Water Sampling: Sampling of surface water and liquids occurred on November 17, 1992. Three samples were collected from locations based on reported areas where surface runoff occurred, as well as from open contained areas (Figure 3). Uncontrolled surface water was reported to flow eastward from the site into a culvert that empties into a drainage ditch on the east side of Highway 169 (SI reported this ditch as an ephemeral tributary to Village Creek). One sample was collected from this drainage ditch at a location approximately 100 feet east of Highway 169 and east of the oil-separator area (Sample #007); (Photo #1-4). One sample was collected from the oily-appearing water in the concrete oil-separator unit located on the east side of the site (#005); (Photos #1-1,2). Another sample was collected from the oil-separator unit's water collection basin immediately to the east of the unit (#006); (Photo #1-3), which was flooded at the time of sample collection. According to reports and conversations with KDHE's Thornton, the separated water that collected in the basin (and from runoff) was pumped uphill to a collection pond in the southwest corner of the site (Photo #1-7). This collected water was allowed to enter the city's storm water drainage system. However, the storage capacity of the oil-separator and the pumping capacity of the pumps were underestimated during the planning stages. Therefore, during periods of high precipitation, runoff exceeded the expected capabilities of the separator/pump facility and overflow occurred (Ref. 1).

All surface water samples were collected directly into the same containers described for the well sampling. Table 1 of the attachments summarizes all water samples collected, for both ground and surface water sampling activities.

Soil, Sediment and Sludge Sampling: Sampling of soil, sediment and sludge occurred on November 17, 1992 (Figure 3). To determine whether off-site migration had occurred, multi-aliquot samples were collected in three off-site drainage ditches where surface runoff occurs. Each aliquot was collected from a 0- to 6-inch depth with steel spoons or a shovel and composited with the other aliquots in aluminum pie pans. One sample was collected from the ditch bounding the site to the north, along the south side of Ash Grove Road (#009). One sample was collected from the ditch bounding the site to the

east, along the west side of Highway 169, extending from the culvert near the oil-separator to the northeast corner of building #7 (#010). This sample turned up a black oily sludge with strong petroleum odors (Photo #1-6). The third drainage-ditch sample was collected in the drainage ditch across Highway 169, beginning at the culvert and extending east for approximately 100 feet (#011). This was the same location of surface water sample #007.

A grab soil sample was collected from an area of visually stained soil at the northwest corner of the warehouse--building #7--at a depth of 0 to 2 inches (#015). The stained soil covered an area approximately 20 by 25 feet (Photo #1-12).

A sludge sample was collected from the bottom-sludge pit located on the west side of the site, near the northwest corner (#013). The sample was collected at the eastern edge of the pit. The pit, measuring approximately 50 by 100 feet, was completely filled with a thick tarry sludge, which was overflowing on the east side (Photos #1-9,10).

A sediment sample (#012) and duplicate were collected from the water-collection pond at the southwest corner of the site. The pond was low and overgrown with weeds at the time of sampling (Photo #1-7). The sample was collected at the edge of the water line at the southeast corner. The concrete water-influent structure for the pond was filled with an oily liquid (Photo #1-8).

In the KDHE tank survey, one 500-barrel horizontal concrete tank used for crude oil storage (numbered tank 90 in the survey) was reported to still contain fluids. Although the numbered tank could not be located on the KDHE map and most tanks were not numbered on site, only one such tank fit the description during the TAT inspection. The concrete tank, located near the center of the site due east of numbered tank 15, was a divided tank approximately 20- by 40-feet wide and partially underground (Photo #1-11). The black oily sludge was approximately 6 feet deep on one end and 4 feet deep on the other. One sample was collected from the tank (#014).

A background soil sample was collected approximately 1 mile west of the site (#008). The grab sample was collected in the roadside ditch along the west side of Plummer Road, about 100 feet south of the Plummer and Ash Grove intersection (Photo #1-5).

All soil, sediment and sludge samples were collected in 16-ounce glass jars for the analysis of semi-volatiles and polychlorinated biphenyls (PCBs), due to a portion of the site having been leased to the Rose Chemical PCB Company. In addition, the analysis of total petroleum hydrocarbons (TPH) and percent solids was requested for the soil and sediment samples. Table 2 of the attachments summarizes those samples collected.

Asbestos Sampling: Potential asbestos material was noted throughout the site, primarily as indoor and outdoor pipe wrappings and tank coverings. Much of the material was exposed and deteriorated and was hanging from pipes and tanks as well as on the ground. A pile of apparently new, unused pipe wrapping as well as weathered pipe wrapping was observed in building #7. Several boxes of the new material were labeled as containing asbestos fibers. An asbestos field test that detects amosite or crocidolite fibers was conducted on both the asbestos-labeled material and the nonlabeled material. The asbestos-labeled material was positively identified as asbestos, while the other material had a "slight" positive result.

Due to the potential for much of the exposed and deteriorating pipe and tank covering throughout the site to contain asbestos, three other samples were collected from outdoor areas for laboratory asbestos analysis (Figure 3). One was from the exterior insulation covering a large storage tank (tank #66), south of building #5 (#016). A second was collected from material covering aboveground pipes east of tanks #47 and #69 (#017). The third asbestos sample was collected from the insulation material covering an aboveground tank immediately south of building #12 (#018). All asbestos samples consisted of pinching material from at least three different areas, mixing the material and placing it in a 4-ounce glass jar.

Building and Chemical Inventory:

The chemical inventory began on November 16, 1992, with three TATMs conducting continuous air monitoring while conducting a preliminary inventory of products remaining in the buildings. The purpose of the inventory was to confirm the presence of products documented during the KDHE inventory and to note other products observed, including unlabeled containers of unknown substances. As this was a preliminary removal assessment, per the OSC's direction, a thoroughly documented inventory of each container would not be conducted during this site assessment. Recording of complete label and container information and the marking and staging of containers was deemed unnecessary at this time.

Ten buildings were inventoried in the KDHE survey. The same numbering system for those buildings was retained in the TAT inventory, but several other smaller buildings and sheds were added. The initial walk-through of each building was conducted in Level C personal protective equipment (PPE) with continuous air monitoring consisting of an oxygen/explosimeter to measure for explosive atmospheres and a HNu photoionizer for detection of gases and vapors. In the laboratory buildings where the potential for mercury from broken thermometers existed, a Jerome mercury vapor analyzer also was used to measure for mercury levels. Unlabeled containers of unknown products or wastes were noted for possible later sample collection for hazcatting.

The inventory of chemical products/wastes and estimated quantity observed in each building is included in Appendix A. Following is a narrative of the former use (if known) and condition of each building and brief discussion of the inventory.

Building #1 is a small one-room building that appeared to have been used as one of the site's laboratories (Photo #2-14). Vandalized laboratory equipment consisted of ovens, waterbaths and scales. Broken and unbroken laboratory glassware were scattered about the tables and floor, including numerous thermometers. Beads of mercury from the broken thermometers were noted throughout the room (Photo #2-13). The resulting mercury vapors rose to 0.03 milligrams per cubic meter (mg/m^3) in the breathing zone during TATs inventory, despite the two open doors and broken-out windows.

Approximately 30 labeled containers, mostly pint- to gallon-sized bottles, were recorded, including a variety of laboratory chemicals, reagents and solutions. Of notable concern were a gallon bottle of trichloroethylene and a spilled can of purified asbestos. There were approximately 20 unlabeled containers in building #1, 13 of which contained what appeared to be black oily sludge. The metal building is in fairly good shape and the TAT survey coincided with the KDHE survey.

Building #2 is a small, trash-cluttered two-story building, filled primarily with bottles and cans. The upstairs contained numerous glass bottles and metal cans holding unknown liquids. The lower room was filled with deteriorating boxes of rusted and empty cans, as well as approximately 24 filled, unlabeled metal cans. The small room on the east side contained only trash. The 5-gallon bottle of carbon

tetrachloride noted by KDHE was not observed. The brick building, including the outside metal stairs to the upper floor, appeared to be in relatively good condition.

Building #3 is a fairly large eight-room concrete and brick building, including an office and restroom (Figure #4: Building Sketches). The building is deteriorating, especially portions of the roof, and several rooms have standing water (Photo #2-15). The two adjoining laboratories (rooms D and F in the inventory and sketch) appear to have been extensively vandalized, with broken analytical equipment, glassware and bottles strewn about. Numerous chemical spills have occurred throughout the two rooms (Photos #2-16, 17, 19 & 20).

Approximately 200 containers of assorted sizes are in the five main rooms, most of which are labeled and contain both nonhazardous and hazardous substances, including corrosives, flammables, and poisons. The majority of bottled chemicals and reagents was in rooms C, D and F. One glass-enclosed cabinet full of small bottles of chemicals could not be opened without potentially breaking the doors and containers inside. Of notable concern in rooms D and F were bottles of toluene, acetone, hexane, nitric acid and hydrochloric acid. Many opened and empty bottles of these same substances were lying around the laboratories. There was also a 5-lb. box labeled "poison-don't touch, inhale, swallow" and a cardboard box of metal shavings with a "radioactive" warning label. Several beads of mercury were observed on a table and the floor in room C.

Several rooms were cluttered with other trash, such as metal debris and files in room E. The TAT inventory was considerably more in-depth than the KDHE survey of building #3. Twenty-four containers of unknowns, mostly in pint- to quart-sized bottles, were staged for possible sampling and hazcatting (Photo #2-17).

Building #4, the compressor building, consists of three rooms with a considerable amount of exposed and deteriorating fibrous material covering the pipes and on the floor of the front room, presumably containing asbestos. The TAT inventory was similar to that of KDHE, noting four 55-gallon drums, five 5-gallon drums or cans, and four gas tanks (one oxygen and three nitrogen) chained to a wall (Photo #2-21). The adjacent pump house was flooded.

Building #5, located on the north edge of the site, appears to be the newest building and is in good condition. All chemicals, approximately 100 bottles and cans ranging in size from a few ounces to a gallon, were stored in a small room on the southwest corner (Photo #2-25). They are easily visible and accessible from the outside. Almost all bottles were clearly labeled and included chemicals such as methylene chloride, sulfuric acid, hexane, benzene, ether, isooctane, chloroform, DDT and methanol. In addition to the bottled chemicals, there were "PCB warning" labels scattered about and a container of PCB test kits. The transformer noted in the KDHE survey could not be found.

The small, crowded room was also filled with boxed and unboxed, new and used laboratory glassware, pipets, etc. The large room of the building contained primarily crated and boxed mechanical and piping/valve equipment, most of which appeared new.

Building #6, a medium-sized storage shed with a large open doorway, contained primarily various sized drums (approximately 25) and debris. The labels on many drums were illegible and some were badly rusted and leaking. Most appeared to contain an oily waste material. Of the legible labels, the most notable were one full 55-gallon drum labeled as a flammable liquid with organic acids and xylenes, and a full 55-gallon drum labeled as glacial acetic acid--corrosive.

Outside the building, there are several horizontal metal tanks (approximately 55 gallons) supported on metal stands. One tank may have contained product in it, however, none of the tanks were opened.

Building #7 is a large warehouse consisting of five main rooms and a second floor (Figure 3). The building is in poor condition and many portions of the roof and second-story floor have collapsed, exposing the interior contents to rain, etc. (Photo #2-11). TAT did not enter the second story due to the unsafe condition of the stairs and floor.

As noted previously, boxed pipe wrappings, labeled as containing asbestos, were found in room E of the warehouse (Photo #2-12). The same type of material, although more weathered and not labeled, was found in the same area as well as stacked in room B of the warehouse.

Twenty-two 55-gallon partially to full metal drums and seven empty 250- to 500-gallon metal tanks were found in room C (Photos #2-6 & 7). Most of the drums were grouped together, some in pools of standing water. Their condition ranged from fair to rusted and leaking; OVA readings near spilled liquids ranged up to 70 ppm. Several drums were marked as flammable, however, most drums had illegible labels. Opening of 11 drums indicated they contained an amber sludge and/or oil (see Hazardous Waste Categorization/Sampling section).

Building #8 was the boiler house for the refinery. The brick building is in poor condition with the floor boards falling in and the fire brick walls deteriorating and collapsing (Photo # 2-22). A black oily substance (also noted in the KDHE survey) was observed leaching through the west foundation wall (Photo #2-3). Most overhead pipes are now bare and the pipe wrapping, presumably asbestos, is exposed, deteriorating, and hanging from pipes as well as on the ground (Photo #2-23). There were four drums, three metal tanks, and one poly tank, all containing unknown substances.

Building #9 is a small one-room building that primarily contained a stack of approximately 50 deteriorating bags of activated carbon. KDHE had reported five full drums of methanol; two are now empty. There were three small containers of unknowns. A very small building adjacent to the south of Building #9 contained six 5-gallon buckets of a white unknown powder.

Building #10 was the main office building at the site, consisting of five small rooms. Besides furniture, an open refrigerator, files and scattered papers, there were a few small bottles of cleaners, spot remover, duplicating fluid, and rust inhibitor, as noted in the KDHE survey. The roof is leaking badly, but the concrete building is otherwise in fair condition.

Buildings #11, #12, and #13 on the site map were not inventoried by KDHE. TAT observed the following in those buildings.

Building #11 is a small brick building immediately west of the boiler house. A trench filled with a black oily substance surrounded the southeast corner of the building (Photo #2-4) and may be the source of the black leachate seeping into the boiler house foundation.

Four 55-gallon drums, all containing product, were found in the building. One was labeled as containing oil, another as rust corrosion inhibitor, which had an OVA headspace reading of 150 ppm. There is a considerable amount of exposed pipe wrapping, presumably containing asbestos, in and outside of the building and on the ground.

Building #12, the refinery's "control room", located immediately west of building #11, did not contain any chemicals or containers.

Building #13, a truck shed south of the warehouse, did not contain any observable chemicals. Besides tires in the open shed area, the back room of the shed contained large piles of books, files and trash.

Hazardous Waste Categorization/Sampling:

On November 17 and 18, 1992, TAT collected samples of unknown substances for the purpose of hazard categorization. Samples were collected directly into 40 ml VOA vials. The container and vial were marked with the same identifying number: building # - room letter (if applicable) - sample number, beginning with "1" for each area. Hazcatting was conducted on site by TATM Kinroth. The field screening data are summarized in the attachments (Appendix B).

Forty-four samples were collected for field screening; an additional two samples were tested for asbestos. The majority of samples were collected from unlabeled bottles in the laboratories in building #3. Samples were also collected from bottles and drums in buildings #1, 2, 6, 7, the boiler house, and from two drums next to the oil-separator unit. All samples were discrete samples from single containers, except for Hazcat sample #7-C-1, which was a composite of five similar, grouped drums containing a multi-phased amber oil/amber sludge, each with OVA headspace readings between 100 and 150 ppm.

Of the 44 samples collected for hazcatting, six were corrosive (pH = 13 and 14), and 24 were flammable (ranging from $<59°$ to 185° F). One corrosive and one flammable sample also were identified as oxidizers.

Based on the results of the hazcatting, additional sample volumes were collected from five of the hazcatted samples for confirmation purposes as well as additional laboratory analysis. Table 3 of the attachments summarizes those samples and the requested analysis.

In addition to the containerized sampling, TAT also collected one floor-sweepings sample composited from buildings #1 and #3, where the majority of bottled chemicals were located and where the most notable spills and broken thermometers were observed. The sample (#023) was collected with a broom and pie pan and placed in a 16-ounce glass jar for the analysis of semi-volatiles and metals, including mercury.

General Site Conditions:

The entire 29-acre site is in deteriorating condition. As noted in the KDHE survey, access is partially open on the west side of the site. Areas of visibly stained soil were noted throughout the site, and many areas have eroded extensively, uncovering underground pipes and making some roads impassible. During periods of heavy rains, as encountered on November 18, 1992, excessive runoff and pooling of oily water can be observed throughout the site.

All buildings were easily accessible and suffered from much apparent vandalism, particularly in the laboratories. Several of the buildings were in deteriorating condition and their contents exposed to weather. Many of the drums are rusted and have begun to leak.

A junk pile of metal debris, trash, old tanks and at least 50 55-gallon metal drums exists at the northwest corner of the site, just east of the bottom-sludge pit. Most drums were partially full to full of a black hardened substance. At least a dozen other drums were noted scattered throughout the site, some partially buried or totally rusted out and empty.

The preliminary removal assessment was completed at 1100 hours on November 18, 1993. TAT and the OSC then proceeded to the Newton County Drum site near Joplin, Missouri, before proceeding back to Kansas City, Kansas, the following day. The 27 samples, including two duplicates, one rinsate sample and one trip blank, were submitted to the Region VII EPA Laboratory for analysis under activity number NBX02 on November 20, 1992.

DATA RESULTS AND DISCUSSION

Data results were received by TAT on January 22, 1993 (Appendix C: Data Transmittal). The quality assurance samples (e.g., the rinsate sample and trip blank) were nondetect for all compounds.

Of the three monitoring wells sampled for volatiles and semi-volatiles, compounds were only detected in MW1, on the east side of the site, which is the downgradient well. This well exhibited a headspace reading greater than 1,000 ppm when initially opened. Samples #004 and #004D, collected from MW1, yielded the following concentrations: 19.0 and 21.0 micrograms/liter (μg/L) naphthalene, 13.0 and 14.0 μg/L 2-methylnaphthalene, and 901 and 972 μg/L benzene.

MW1 was also the most contaminated well documented by KDHE. Benzene concentrations appear to be rising; KDHE results reported benzene concentrations of 0.4 μg/L in November 1986, and 520 μg/L in MW1 in January 1987. The semi-volatiles detected in the other wells by KDHE were not detected in this sampling event.

Of the three surface water samples collected (the oil-separator unit, the water-collection basin for the oil-separator, and an off-site drainage ditch) no volatiles or semi-volatiles were detected.

No compounds were detected in any of the four soil and sediment samples collected in the three site-bounding ditches, the off-site drainage ditch, or the background sample. These samples were submitted for semi-volatiles, total petroleum hydrocarbons (TPH) and PCBs. The soil grab sample collected on site from a visually stained area (#015) was analyzed for the same compounds; TPHs were detected at 118,500 milligrams per kilograms (mg/kg). No other compounds were detected. These results are consistent with the KDHE sampling of on-site soils.

No semi-volatiles or PCBs were detected in the sludge samples collected from the collection pond, the bottom-sludge pit or the concrete tank. The collection-pond samples--#012 and #012D--were additionally analyzed for TPHs and yielded concentrations of 165,400 and 150,500 mg/kg TPH, respectively.

Of the three samples submitted for asbestos analysis, two were positive. Sample #017, collected from exterior overhead piping, was 15 % bulk amosite. Sample #018, collected from tank insulation covering near the boiler house, was 8% bulk chrysotile. The sample collected from the insulating material around a large tank near building #5 (#016) was negative for asbestos.

The floor-sweeping sample (#023), composited from the floors of buildings #1 and #3, exhibited significant concentrations of mercury (17,000 mg/kg), lead (2,290 mg/kg), cadmium (2,330 mg/kg), chromium (881 mg/kg) and zinc (1,080 mg/kg). Other metals detected were: cobalt, calcium, copper, vanadium, nickel, manganese, barium and silver. No semi-volatiles were detected.

Five hazcat samples were selected for submittal to the laboratory for confirmation purposes and other analysis. As seen in Table 4 of the attachment, the analysis confirmed the ignitability of four substances submitted for flashpoint. The samples exhibited flashpoints of 74.3 to 125° F, and are therefore categorized as hazardous by ignitability under the Resource, Conservation and Recovery Act (RCRA) classification.

Of two samples submitted for pH confirmation, both were caustic (pH = 11.3 and 12.7), however, only one could be classified as hazardous by corrosivity by EPA standards (e.g., pH greater than or equal to 12.5).

No PCBs or semi-volatiles were detected in any of the product/waste samples. VOCs were detected only in sample (#022): 6,040 mg/L acetone and 1,000 mg/L methyl ethyl ketone (2-butanone).

It should be noted that although no semi-volatiles were detected in the soil, sediment, sludge or product samples, the results should be regarded with caution, due to the high detection limits reported. Due to high compound interferences and the clogging of the analytical columns, most samples had to be diluted several times in order to be analyzed. This resulted in elevated detection limits. In actuality, many contaminants could be in those samples at concentrations less than the reported detection limit.

SUMMARY

TAT conducted a site assessment at the abandoned Mid-America Refinery Co. (MARCO) site in Chanute, Kansas, from November 16 through 18, 1992. The assessment included a preliminary inventory of drums and chemicals remaining in the buildings, sampling and hazard categorization of unknown substances, sampling of ground water, surface water, containerized sludges, and on- and off-site surface soils and sediments, and photodocumentation.

The inventory of hundreds of containerized chemicals identified numerous hazardous substances, including corrosives, flammables, poisons and a box of metal shavings labeled as radioactive. All chemicals are easily accessible through open doorways and broken-out windows. Many of the buildings are in deteriorating condition and their contents are exposed to weather. Although most bottled containers are now labeled, due to vandalism and exposure to weather the legible labels will undoubtedly decay in the future.

An additional hazard in the buildings is the presence of mercury on floors. Analysis of a floor sweeping taken from the two on-site laboratories indicated 17,000 mg/kg mercury, as well as other hazardous metals. The mercury vapors inside building #1 (up to 0.03 mg/m^3) require the use Level C PPE with mercury cartridges; the vapors could be much higher should the beads of mercury be disturbed.

Based on field screening and laboratory analysis, as well as labeled boxes of pipe wrap, much of the pipe wrapping and tank insulation used extensively throughout the site could contain asbestos fibers. The suspect material is exposed and frayed, and a considerable amount has fallen to the ground.

Approximately 70 30- to 55-gallon drums of product/waste material exist inside the open buildings at the site. Hazcatting results and selected laboratory analysis of some hazcat samples indicate that many of the drums' contents are hazardous due to corrosivity and ignitability. Many drums are rusted and beginning to leak and will continue to rust and leak under the deteriorating conditions of the buildings. Although an exact count was not made, at least 60 drums are estimated to be scattered around the site outside of buildings, primarily in the northwest corner. Two of the outdoor drums did not exhibit any hazardous characteristics during field screening, however, the contents of the remaining outdoor drums are unknown.

Environmental sampling indicates that contamination from the refinery does exist on site. Ground water contamination of VOCs continues to exist at the on-site downgradient well, with benzene as the major contaminant at 972 μg/L. The maximum contaminant level for benzene in drinking water is 5.0 μg/L, however, ground water in this area is not used for drinking water purposes. Total petroleum hydrocarbons were detected in the on-site soil sample, confirming KDHE data. TPHs were detected at 118,500 mg/kg. The State regulatory level of TPHs in soil is 100 mg/kg. In addition, visually contaminated areas exist throughout the site. TPHs were also detected up to 165,400 mg/kg in the collection pond sediment. Off-site soil and surface water sampling failed to identify any migration of contaminants off site.

TAT has completed the tasks required for this assessment. Based on the data obtained in this assessment, EPA is currently drafting an Action Memorandum. As per EPA, TAT will be tasked to develop a quality assurance sampling plan for further data acquisition in support of the Action Memo, and to assist in a land survey.

ATTACHMENTS

List of References
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Photographic Documentation
Appendix A: Building and Chemical Inventory at Mid-America Refinery
Appendix B: Field Screening Data Summary
Appendix C: Data Transmittal
Appendix D: Kansas Department of Health and Environment Reports:
KDHE SI Conclusions and Recommendations
KDHE Tank Evaluation

LIST OF REFERENCES

1. Kansas Department of Health and Environment, Bureau of Remediation, Final Site Inspection Report for the Mid-America Refinery, March 1, 1987.

2. Kansas Department of Health and Environment, Bureau of Remediation, Mid-America Refinery Site Visit Report, October 12, 1992.

TABLE 1
SUMMARY OF WATER SAMPLES
COLLECTED AT MARCO

SAMPLE # (NBX02)	SAMPLE LOCATION/ DESCRIPTION	WELL DEPTH/ STATIC WATER LEVEL	FIELD MEASUREMENTS		ANALYSIS REQUESTED
			OVA WELL HEADSPACE[1]	pH TEMPERATURE CONDUCTIVITY[2]	
001	Monitoring Well #4; NW corner	16' 4' 8"	2 ppm	6.55 62.1°F 1390 μ HOS	VOCs Semi-volatiles
002	Rinsate of boiler	NA	NA	NA	VOCs Semi-volatiles
003	Monitoring Well #3; NE corner	27.5' 3' 3"	0 ppm	7.0 58.0°F 510 μ HOS	VOCs Semi-volatiles
004 004D	Monitoring Well #1; east edge of site	25' 4' 10"	1000 ppm	6.92 54.1°F 1380 μ HOS	VOCs Semi-volatiles
005	Water from oil-separator unit; east edge of site	NA	NA	NA	VOCs Semi-volatiles
006	Water from oil-separator collection basin; adjacent to oil-separator unit	NA	NA	NA	VOCs Semi-volatiles
007	Water from off-site drainage ditch, ~ 100' east of Hwy. 169	NA	NA	NA	VOCs Semi-volatiles
019F	Trip blank, provided by EPA	NA	NA	NA	VOCs

[1]OVA reading taken when well opened.

[2]pH, temperature and conductivity at time of sample collection.

TABLE 2
SUMMARY OF SOIL, SEDIMENT AND SLUDGE SAMPLES
COLLECTED AT MARCO

SAMPLE # (NBX02)	MEDIA/ DEPTH	SAMPLE LOCATION/ DESCRIPTION	COMPOSITE OR GRAB	REQUESTED ANALYSIS
008	Soil 0-2"	Background sample-drainage ditch 1 mile west of site	Grab	Semi-volatiles PCBs TPH % Solid
009	Sediment 0-6"	Drainage ditch bounding site to north	Composite (4 aliquots)	Semi-volatiles PCBs TPH % Solid
010	Sediment/Sludge 0-6"	Drainage ditch bounding site to east	Composite (3 aliquots)	Semi-volatiles PCBs TPH % Solid
011	Sediment 0-6"	Off-site drainage ditch east of site and Hwy 169	Composite (3 aliquots)	Semi-volatiles PCBs TPH % Solid
012 012D	Sediment/Sludge 0-6"	SE corner of water collection pond on SW corner of site	Grab	Semi-volatiles PCBs TPH % Solid
013	Sludge/Solid 0-6"	East edge of bottom-sludge pit on NW corner of site	Grab	Semi-volatiles PCBs
014	Oily sludge	20' x 40' concrete tank (Tank #90)	Grab	Semi-volatiles PCBs
015	Soil 0-2"	Visually stained soil at NW corner of warehouse (building #7)	Grab	Semi-volatiles PCBs TPH % Solid

TABLE 3
SUMMARY OF HAZCAT SAMPLES
SUBMITTED FOR LABORATORY ANALYSIS

HAZCAT #	DESCRIPTION	HAZCAT RESULTS	LAB SAMPLE # (NBX02)	REQUESTED ANALYSIS
1-2	Gal. bottle - clear liquid	Flammable liquid (<59°F) HNU = 300 ppm	025	Flashpoint
3-D-7	Bottle- clear liquid	Flammable liquid (<75°F)	024	Flashpoint
6-1	1 Drum: light amber liquid	Corrosive (pH = 14); Oxidizer	022	VOCs, Semi-volatiles, PCBs
7-C-1	Composite of 5 drums: 2 phases: amber oil/amber sludge	Corrosive (pH = 13); inconclusive chlor-n-oil test Flammable (no Ceta) HNU ~ 100 to 150 ppm	020	VOCs, Semi-volatiles, PCBs, Flashpoint, pH
7-C-2	1 Drum: 1 phase: amber oil	Flammable (no Ceta); Possible PCB positive >50 ppm HNU > 1000 ppm	021	VOCs, Semi-volatiles, PCBs, Flashpoint, pH

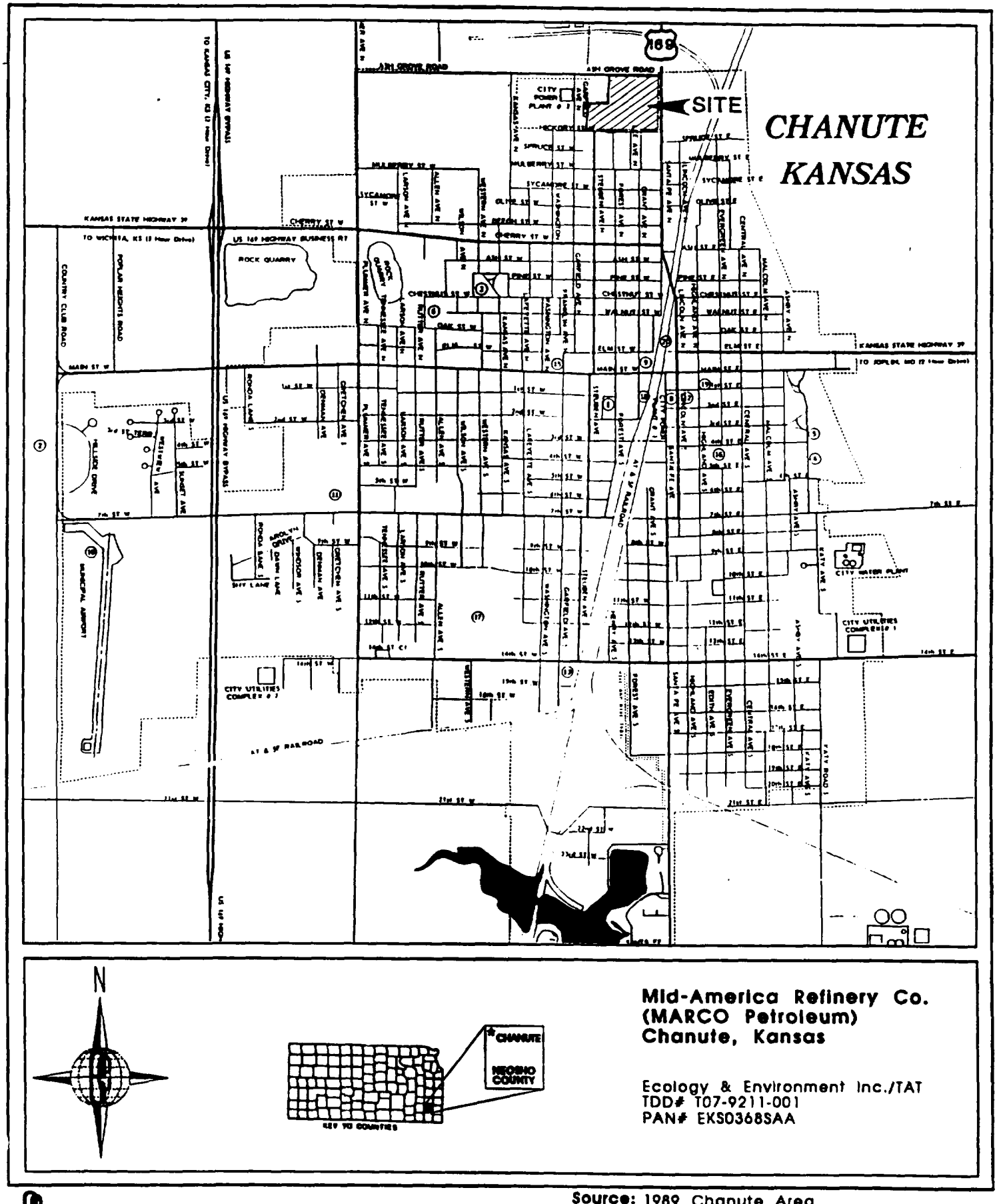
TABLE 4
SUMMARY OF LABORATORY ANALYSIS OF
SELECTED HAZCAT SAMPLES

LAB SAMPLE # (HAZCAT #)	VOCs (mg/L)	SEMI-VOLATILES	PCB	FLASHPOINT (°F)	pH
020 (7-C-1)	ND	ND	ND	125	11.3
021 (7-C-2)	ND	ND	ND	91.4	12.7
022 (6-1)	6,040 Acetone 1,000 2-Butanone	ND	ND	NR	NR
024 (3-D-7)	NR	NR	NR	74.3	NR
025 (1-2)	NR	NR	NR	96.8	NR

ND = Not Detected at the reported detection limit (see data transmittal for detection limits).

NR = Analysis Not Requested.

FIGURE 1: Site Location Map



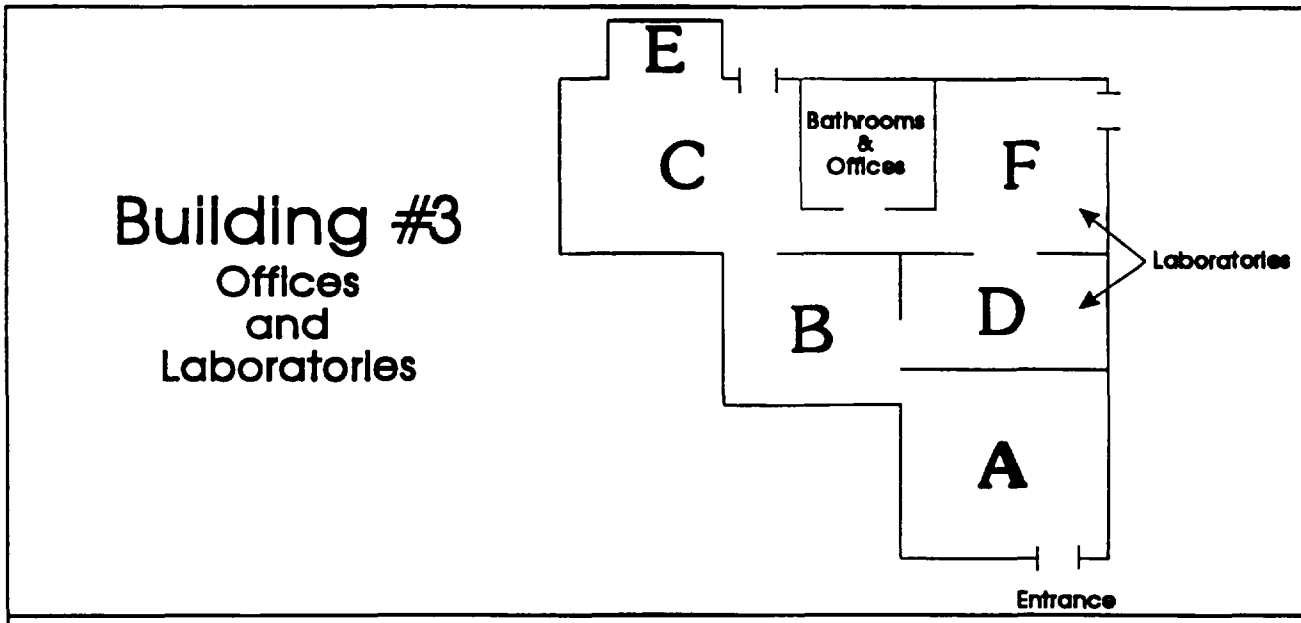
Mid-America Refinery Co.
(MARCO Petroleum)
Chanute, Kansas

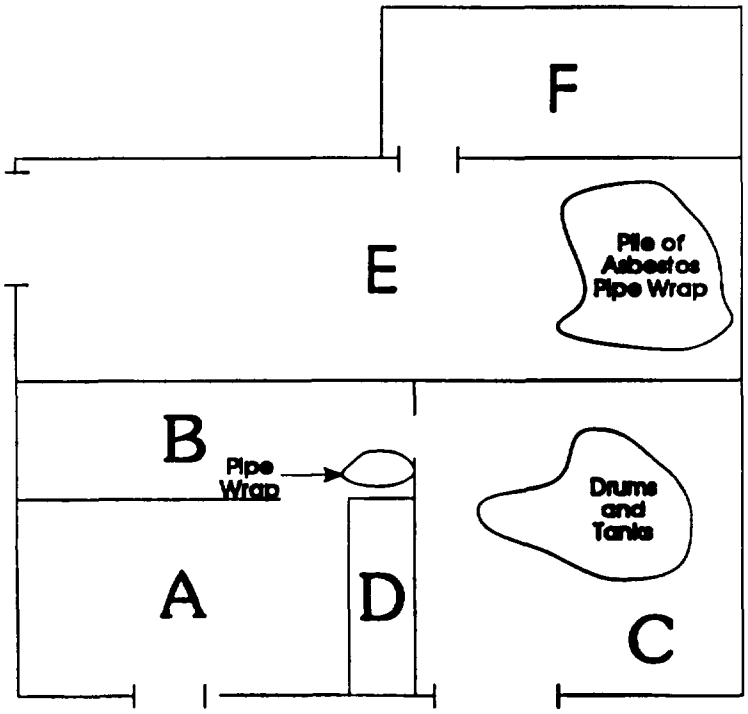
Ecology & Environment Inc./TAT
TDD# T07-9211-001
PAN# EKS0368SAA

ecology and environment, inc.
OVERLAND PARK, KANSAS

Source: 1989 Chanute Area Chamber of Commerce
Prepared by Mark Mayo
January 1993

FIGURE 4: SKETCHES OF BUILDINGS #3 & #7





Building #7
Warehouse

Sketches not to Scale

N

Mid-America Refinery Co.
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Ecology & Environment Inc./TAT
TDD# T07-9211-001
PAN# EKS0368SAA

ecology and environment, inc.
OVERLAND PARK, KANSAS

PRELIMINARY CHEMICAL INVENTORY
BUILDING #1

Marked Containers:

Trichloroethylene; 1-gal bottle ~ 1/8 full-liquid
Purified Asbestos; ~ 1-gal metal can (some spilled on table)
CaCl/KCl; (4) 1-lb bottles
Buffer Solutions (pH 4 & 10); 6 bottles
Ionic surfactants; (2) 1-pt. bottles
Chromic acid; qt. bottle ~ 4 oz. full (liquid)
KCL (4 M); qt. bottle ~ 10 oz. full (liquid)
Constant Temperature Bath Oil (wt. mineral oil w/oxidation inhibitor; 5-gal. drum ~ 1/2 full)
Sodium oleate; (2) 1-gal. bottles (powder)
Drierite ($CaSO_4$); (1) 5-lb bottle (pellets)
CaCl Solution; 1-gal. bottle
Epoxy coating/hardeners/activators; (5) 1-gal & (1) 1-qt metal cans
Glycerin - $C_2H_5(OH)_3$ (analytical reagent); (1) 1-gal bottle
Oleic acid practical; jar (lt. brown powder/crystals
CaCl; several 1 1/2 to 1-lb plastic) jars (wt. powder)
K-494; ~ 1-pt. bottle (clear liquid)

Unmarked Containers:

~ 50 ml jar - golden clear liquid
1/2-gal. bottle - clear liquid
Cottage cheese tub - white crystals
1/2-gal. bottle - clear liquid
(2) ~ 1-qt. clear solution in a bottle w/ glass tubing out of rubber stopper (water trap?)
Clearish, sand-like solid in (1) 8-oz. screw-top bottle
(10) 24-oz. screw-top metal bottles, 1-gal. paint can, (2) 1-qt. cans; black oily material
(1) 32-oz. bottle amber liquid (~ 8 oz.)

Empty Containers:

1-qt. & 5-gal. metal cans - Naphtha
5-gal. can Heptane
5-gal. gasoline can in sink

BUILDING #2

Upstairs:

~(10) pt. to qt. glass bottles of brownish liquid (fuel/lubricant/gasoline samples?)
(3) 1-gal. metal cans with unknown liquid
Numerous rusted empty cans with no lids

Downstairs:

~(12) 1-gal. metal cans of dark amber oily substance; many rusted and empty
~(12) 1-qt. metal cans of black tarry substance; also deteriorated box of 12 rusted and empty cans.

BUILDING #3
(See Figure #3)

Room A:

Hi-Temp E.P. Grease (MFA Oil Co.); 5-gal. bucket
Unknown white substance; 1-gal. plastic bottle
Unknown amber liquid; 4-oz. bottle

Room B:

Unknown amber oil; 1/2 full 30-gal. drum
Bag of rock salt
Several empty paint cans, some with dried substance

Room C:

Toluene; 1-gal. jar
Acetone; 5-gal metal can ~ 1/4 full
Potassium chloride; 1-qt. jar - full
Potassium phosphate dibasic; 1-pt. jar
Cadmium sulfate anhydrous; 1-pt. jar
Soda lime; 1-pt. jar
Sodium chromate; 1-pt. jar
Permanganate; 1-pt. jar
Potassium bromide; 1-pt. jar
Amyl alcohol; 1-gal. bottle ~ 1/2 full
Dryer Reduced (flammable); 1-gal. can
Bolted Tank Cement; 1-gal. can
Motor oil, lubricant; 2 cans, 1 plastic bottle
Beads of mercury on counter and floor

Unknowns:

Unknown amber liquid; 1-gal. plastic jug ~ 1/2 full
Unknown black thick liquid; 1-qt. glass jar
Unknown liquid; 1-qt. bottle ~ 1/2 full

Room D:

Toluene; (3) 1-gal. bottles
Blue Dye (hand-written); 1-gal. bottle
Fire Extinguishing Powder (hand-written); 2-gal. metal can
"Radioacative Material" warning label on box containing metal shavings
Hydrogen peroxide; (2) 1-pt. containers
Acetone

BUILDING #3 INVENTORY (continued)

Tretolite (desalting compound); 50 ml
Hyvac oil (for hi-vac pumps); 1-qt.
Flourescent indicator reagent
Isopropyl alcohol; 1-qt.
Ascorbic acid (Vitamin C); 50 ml
Sulfuric acid; (4) 50 ml jars
Several bottles of indicators (H-3, calcium, phenothalein)
Hexane; 1-qt. jar
Heptane; 1/2-gal. jar
Nitric Acid; 1-qt. jar
Hydrochloric Acid; 1-qt. jar
p-Naphtholbenzein; 4-oz. jar
Cedmion Sulfuric acid; qt. jar
Potassium phosphate monobasic
Calcium chloride; (2) 1-pt.
Sodium thiosulfate; 1-pt.
Potassium chloride; (3) 1-pt. jars
Potassium phosphate dibasic; 1-qt. jar
Potassium acid phthalate; (2) 1-qt. jar
Silver nitrate liquid
Potassium dichromate; (2) 1-qt. jar
Potassium bromide;
Ferric ammonium sulfate;
Silica gel; (4)
Carbonate anhydrous
Ammonium thiocyanate; (2) liquid, (1) crystal
Sodium hydroxide pellets; 1-qt.
Lead oxide powder
Lead monoxide
Cold flow improver (combustible); (3) 8-oz. jars
Metal deactivator; 2-oz.
Mercuric chloride; 2-oz.
Silver nitrate crystals; (2) 2-oz.
Methyl orange; 2-oz.
Filter acid; 2-oz.
Lead chloride; 2-oz.
Mercury iodide; 1-oz.
Diphenylthiocarbazone; 2-oz.
"Ethyl" (red dye); (3) 4-oz. cans
Barium chloride
Acid Tannic
Naphtha-acestone (hand-written label); rusty 5-gal. can
Phosphate Buffer; 32-oz. jar
Aniline - $C_6H_5NH_2$; (2) 1-pt. bottles

BUILDING #3 INVENTORY (continued)

Potassium iodide; 1-lb. bottle
6,6 Di-tert-butyl-4,4 bi-o-cresol; (2) 5-lb. fiber boxes
Several dozen small bottles in a cabinet with a stuck glass door; opening may have caused glass breakage and/or chemical spillage
1-qt, glass bottle of unknown white substance that had formed crystals on cap and outside of bottle
5-lb. box of unknown - labeled "Poison - Don't Touch, Inhale, Swallow"
Several empty bottles and cans labeled acetone, isopropyl alcohol, BET 1201 Tech Grade

Room E:

(~20) qt. and gal. cans of paint, roof cement, and lubricants

Room F:

Dow Corning 200 Fluid (Dimethyl polysiloxane); 7.5 l cubitainer
n-Heptane; 5-gal. can ~ 3/4 full
Petroleum Ether; trace amount in 5-gal. can
Shell ASA-3 Antistatic additive (Flammable liquid, NOS); 5-gal. can ~ 1/2 full
Tretolite "VEZ Antifoamer" (Flammable liquid); ~ 8 oz. in 1-gal. plastic bottle
Potassium Acid phthalate standard; 1-qt. bottle
Methyl Purple and Thymol Blue indicator solutions; 1-qt.
NH_4OH; 1-lb. bottle ~ 1/2 full

Unknowns:

Solid white powder in Eagle Picher containers; (2) 2-lb. bottles - has leaked on and under sink
Clear liquid in several sizes of glass (5) bottles (~ 2-oz. to 16-oz.)

BUILDING #4

Front Room:

(2) 55-gal. drums of oil substance; marked "Tretolite Division"
Potential asbestos fibers on pipes and floor

Middle Room:

(2) empty 55-gal. drums; 1 metal, 1 poly

Back Room:

5-gal. red-orange can w/ oily substance - full
1 oxygen tank
3 nitrogen gas tanks chained to wall
(2) 5-gal. metal drums: "Kenite Whites"
(2) 5-gal. metal drums: "Ansul (?) Fire Extinguisher Material"
Paint Thinner
Box of 1-gal. paint cans; rusted and empty

BUILDING #5

Marked Containers:

Isooctane; (3) 1-gal.
Methylene chloride; (4) 1-gal.
Sulfuric acid; 1-gal.
Hexane; (4) 1-gal. and (1) 1-qt.
Benzene; 1-gal.
Ethylene glycol diethyl ether
Ethylene glycol monoethyl ether
Acetonitrile; 1 qt. bottle
Polyethylene glycol; (3) 1-, 200-, 300-qt; (2) 1-gal.
Chloroform; 1-qt.
DDT (liquid household spray); 1-qt.
Tetrahydrofuran; 1-gal.
Trichlorotriflouroethane; 1-gal.
PEG-400; 1-qt.
Silicon fluid; (3) 1-qt.
2-methyl-2,4-pentanediol
Sodium formate; (2) 1-gal.
Sodium silicate solution; 1-gal. and 1-qt.
Carbon disulfide; 1-qt.
Drierite; 1-gal.
Charcoal; 1-gal.
Witconate AQS/Witco Acid
Induetrine; 1-pt.
Emulsifier 4
Hystrene; (2) 1-qt.
Amphoteric L
Gelatin capsules
Amonium hydroxide; 1-gal.
Heavy mineral oil; 1-gal.
Glyme; 1-qt.
Sodium thiosulfite; (4) 1-qt.
Potassium ferricyanide; 1-qt.
Potassium chloride; 1-qt.
Potassium thiocyanite; 1-qt.
Phthalic Anhydride; 1-qt.
Bromo-benzene; 1-qt.
Diglyme; 1-qt.
Phosphoric acid-85%; 1-qt.
Chromium trioxide; 1-qt.
Ether; 1-qt. can
1,2,4-trichlorobenzene; (2) 1-qt.
Sodium sulfate; 1-qt.

BUILDING #5 INVENTORY (continued)

Phenolphthalein Solution-1%; 1-qt.
n-amyul alcohol; 1-qt.
Titanium sulfate; 1-qt.
Starch indicator solution; 1-qt.
Amonium chloride; 1-qt.
Iodine solution; 1-qt.
Florisil; 1-qt.
1,4-dioxane; 1-gal. can
Acetic acid glacial
Divinyl benzene; broken bottle and crystalized
Methanol; 1-gal.

Cardboard box of following (< 8 oz. bottles):

Potassium iodide (2)
40% polystyrene/33% gasoline/21% benzene
Potassium thiocyanite
Sodium hydroxide
Aluminum slufate
Nickel powder
Hydrochloric acid
Glycerine
Glacial acetic acid (2)
"Metals" (hand-written label)
Tonsil
Glass beads
Magnesium metal
Rosaniline chloride
Potassium silicate
Acetic anhydride
Zinc metal

Unmarked:

1-gal. coffee can of solid on bottom and overflowing with white crystals that have spilled onto table

BUILDING #6

Approximately 25 various-sized drums, many with rusted, illegible lables; some legible lables were:

DCI-6A-flammable liquid/organic acids and xylenes; full 55-gal.
Glacial acetic acid-corrosive; full 55-gal.
Boiler Water Treatment - eye and skin irritant; (3) 55-gal. rusted drums with red crystal substance spilled out
National Aluminate Co. (NALCO); 55-gal.
Ethyl, multi-purpose additive; 55-gal.
Ethyl Red Dye; 30-gal.
Anti-Slip Floor Finish; 30-gal.
Bonding Mortar; 2 1/2-gal.
(1) 30-gal. glass jug wrapped in wood and containing unknown clear liquid

Other product names or descriptions noted on several full or partially full drums were:

- rust inhibitor
- santolene
- gasoline antioxidant
- multi-purpose additives

Several horizontal metal tanks (approximately 55 - 100 gallons) outside the building; one tank may have product.

BUILDING #7
(See Figure #3)

Room A:

Primarily empty boxes and trash
Several gas cans
3-gallon sprayer

Room B:

100's of stacked bags of white powder, marked "Mill White"
Bags of rock salt
Pile of pipe wrapping - white, fibrous material, presumably containing asbestos

Room C:

(22) full 55-gallon metal drums, containing amber sludge and/or oil; several drums marked flammable, but most rusted with illegible labels. Two labels were:

Tretolite Division; Demulsifier
DS-655-54-1-001
may burn at elevated temperatures

?? rosura ? AA57
Lot B? 265- M660-610
flammable liquid; NOS

(7) basically empty 250- to 500-gallon metal tanks

Room D:

Buckets of dried paint
Wood pallets and trash

Room E:

1000's of empty quart cans that had fallin through the 2nd floor (appeared to never have contained product)
(1) 55-gallon drum - "Tretolite"
(1) 55-gallon drum - "Boiler Wall Cement"
Large pile of debris (trash, tin, building materials, fiberglass insulation, etc.) and:
- bags of finishing cement
- bags of gravelly substance labeled "Kaiser Refractories"
- boxed and unboxed pipe wrapping; several boxes labeled as containing asbestos

BUILDING #7 INVENTORY (continued)

Room F:

No containers; metal debris only

Outside:

Several drums and a small tank

BUILDING #8

(3) metal tanks - 2 may be water softeners; 1 contained a dark sludge
(1) large open poly tank with a white sludge on bottom, rusty liquid on top
(2) 55-gallon drums with oily substance
(2) 20-gallon poly drums in metal overpacks, containing fluids
Deteriorating pipe wrap hanging from pipes, ceiling and on floor, presumably asbestos
Oily substance oozing into foundation wall

BUILDING #9

~ 50 deteriorating bags of activated carbon
(5) drums labeled methanol - 2 empty
(2) unlabeled bottles - one covered with white crystals
1-gallon plastic container of clear liquid
(6) 5-gallon buckets of white powder in small adjacent building

BUILDING #10

Several small bottles of cleaners, spot remover, duplicating fluid, rust inhibitor.

BUILDING #11

(4) filled, 55-gallon drums: two were labeled:
- MSA oil
- rust corrosion inhibitor

Deteriorating pipe wrapping overhead, on floor, and outside - presumably asbestos
Oil-filled trench around southeast exterior corner of building.

BUILDING #12

No containers/chemicals; only strip charts, meters, logbooks, etc.

BUILDING #13

No containers/chemicals; only trash, tires, books, files, etc.

APPENDIX A

BUILDING AND CHEMICAL INVENTORY

AT

MID-AMERICA REFINERY

NOVEMBER 16-17, 1992

PRELIMINARY CHEMICAL INVENTORY
BUILDING #1

Marked Containers:

Trichloroethylene; 1-gal bottle ~ 1/8 full-liquid
Purified Asbestos; ~ 1-gal metal can (some spilled on table)
CaCl/KCl; (4) 1-lb bottles
Buffer Solutions (pH 4 & 10); 6 bottles
Ionic surfactants; (2) 1-pt. bottles
Chromic acid; qt. bottle ~ 4 oz. full (liquid)
KCL (4 M); qt. bottle ~ 10 oz. full (liquid)
Constant Temperature Bath Oil (wt. mineral oil w/oxidation inhibitor; 5-gal. drum ~ 1/2 full)
Sodium oleate; (2) 1-gal. bottles (powder)
Drierite ($CaSO_4$); (1) 5-lb bottle (pellets)
CaCl Solution; 1-gal. bottle
Epoxy coating/hardeners/activators; (5) 1-gal & (1) 1-qt metal cans
Glycerin - $C_2H_5(OH)_3$ (analytical reagent); (1) 1-gal bottle
Oleic acid practical; jar (lt. brown powder/crystals
CaCl; several 1 1/2 to 1-lb plastic) jars (wt. powder)
K-494; ~ 1-pt. bottle (clear liquid)

Unmarked Containers:

~ 50 ml jar - golden clear liquid
1/2-gal. bottle - clear liquid
Cottage cheese tub - white crystals
1/2-gal. bottle - clear liquid
(2) ~ 1-qt. clear solution in a bottle w/ glass tubing out of rubber stopper (water trap?)
Clearish, sand-like solid in (1) 8-oz. screw-top bottle
(10) 24-oz. screw-top metal bottles, 1-gal. paint can, (2) 1-qt. cans; black oily material
(1) 32-oz. bottle amber liquid (~ 8 oz.)

Empty Containers:

1-qt. & 5-gal. metal cans - Naphtha
5-gal. can Heptane
5-gal. gasoline can in sink

BUILDING #2

Upstairs:

~(10) pt. to qt. glass bottles of brownish liquid (fuel/lubricant/gasoline samples?)
(3) 1-gal. metal cans with unknown liquid
Numerous rusted empty cans with no lids

Downstairs:

~(12) 1-gal. metal cans of dark amber oily substance; many rusted and empty
~(12) 1-qt. metal cans of black tarry substance; also deteriorated box of 12 rusted and empty cans.

BUILDING #3
(See Figure #3)

Room A:

Hi-Temp E.P. Grease (MFA Oil Co.); 5-gal. bucket
Unknown white substance; 1-gal. plastic bottle
Unknown amber liquid; 4-oz. bottle

Room B:

Unknown amber oil; 1/2 full 30-gal. drum
Bag of rock salt
Several empty paint cans, some with dried substance

Room C:

Toluene; 1-gal. jar
Acetone; 5-gal metal can ~ 1/4 full
Potassium chloride; 1-qt. jar - full
Potassium phosphate dibasic; 1-pt. jar
Cadmium sulfate anhydrous; 1-pt. jar
Soda lime; 1-pt. jar
Sodium chromate; 1-pt. jar
Permanganate; 1-pt. jar
Potassium bromide; 1-pt. jar
Amyl alcohol; 1-gal. bottle ~ 1/2 full
Dryer Reduced (flammable); 1-gal. can
Bolted Tank Cement; 1-gal. can
Motor oil, lubricant; 2 cans, 1 plastic bottle
Beads of mercury on counter and floor

Unknowns:

Unknown amber liquid; 1-gal. plastic jug ~ 1/2 full
Unknown black thick liquid; 1-qt. glass jar
Unknown liquid; 1-qt. bottle ~ 1/2 full

Room D:

Toluene; (3) 1-gal. bottles
Blue Dye (hand-written); 1-gal. bottle
Fire Extinguishing Powder (hand-written); 2-gal. metal can
"Radioacative Material" warning label on box containing metal shavings
Hydrogen peroxide; (2) 1-pt. containers
Acetone

BUILDING #3 INVENTORY (continued)

Tretolite (desalting compound); 50 ml
Hyvac oil (for hi-vac pumps); 1-qt.
Flourescent indicator reagent
Isopropyl alcohol; 1-qt.
Ascorbic acid (Vitamin C); 50 ml
Sulfuric acid; (4) 50 ml jars
Several bottles of indicators (H-3, calcium, phenothalein)
Hexane; 1-qt. jar
Heptane; 1/2-gal. jar
Nitric Acid; 1-qt. jar
Hydrochloric Acid; 1-qt. jar
p-Naphtholbenzein; 4-oz. jar
Cedmion Sulfuric acid; qt. jar
Potassium phosphate monobasic
Calcium chloride; (2) 1-pt.
Sodium thiosulfate; 1-pt.
Potassium chloride; (3) 1-pt. jars
Potassium phosphate dibasic; 1-qt. jar
Potassium acid phthalate; (2) 1-qt. jar
Silver nitrate liquid
Potassium dichromate; (2) 1-qt. jar
Potassium bromide;
Ferric ammonium sulfate;
Silica gel; (4)
Carbonate anhydrous
Ammonium thiocyanate; (2) liquid, (1) crystal
Sodium hydroxide pellets; 1-qt.
Lead oxide powder
Lead monoxide
Cold flow improver (combustible); (3) 8-oz. jars
Metal deactivator; 2-oz.
Mercuric chloride; 2-oz.
Silver nitrate crystals; (2) 2-oz.
Methyl orange; 2-oz.
Filter acid; 2-oz.
Lead chloride; 2-oz.
Mercury iodide; 1-oz.
Diphenylthiocarbazone; 2-oz.
"Ethyl" (red dye); (3) 4-oz. cans
Barium chloride
Acid Tannic
Naphtha-acestone (hand-written label); rusty 5-gal. can
Phosphate Buffer; 32-oz. jar
Aniline - $C_6H_5NH_2$; (2) 1-pt. bottles

BUILDING #3 INVENTORY (continued)

Potassium iodide; 1-lb. bottle
6,6 Di-tert-butyl-4,4 bi-o-cresol; (2) 5-lb. fiber boxes
Several dozen small bottles in a cabinet with a stuck glass door; opening may have caused glass breakage and/or chemical spillage
1-qt, glass bottle of unknown white substance that had formed crystals on cap and outside of bottle
5-lb. box of unknown - labeled "Poison - Don't Touch, Inhale, Swallow"
Several empty bottles and cans labeled acetone, isopropyl alcohol, BET 1201 Tech Grade

Room E:

(~20) qt. and gal. cans of paint, roof cement, and lubricants

Room F:

Dow Corning 200 Fluid (Dimethyl polysiloxane); 7.5 l cubitainer
n-Heptane; 5-gal. can ~ 3/4 full
Petroleum Ether; trace amount in 5-gal. can
Shell ASA-3 Antistatic additive (Flammable liquid, NOS); 5-gal. can ~ 1/2 full
Tretolite "VEZ Antifoamer" (Flammable liquid); ~ 8 oz. in 1-gal. plastic bottle
Potassium Acid phthalate standard; 1-qt. bottle
Methyl Purple and Thymol Blue indicator solutions; 1-qt.
NH_4OH; 1-lb. bottle ~ 1/2 full

Unknowns:

Solid white powder in Eagle Picher containers; (2) 2-lb. bottles - has leaked on and under sink
Clear liquid in several sizes of glass (5) bottles (~ 2-oz. to 16-oz.)

BUILDING #4

Front Room:

(2) 55-gal. drums of oil substance; marked "Tretolite Division"
Potential asbestos fibers on pipes and floor

Middle Room:

(2) empty 55-gal. drums; 1 metal, 1 poly

Back Room:

5-gal. red-orange can w/ oily substance - full
1 oxygen tank
3 nitrogen gas tanks chained to wall
(2) 5-gal. metal drums: "Kenite Whites"
(2) 5-gal. metal drums: "Ansul (?) Fire Extinguisher Material"
Paint Thinner
Box of 1-gal. paint cans; rusted and empty

BUILDING #5

Marked Containers:

Isooctane; (3) 1-gal.
Methylene chloride; (4) 1-gal.
Sulfuric acid; 1-gal.
Hexane; (4) 1-gal. and (1) 1-qt.
Benzene; 1-gal.
Ethylene glycol diethyl ether
Ethylene glycol monoethyl ether
Acetonitrile; 1 qt. bottle
Polyethylene glycol; (3) 1-, 200-, 300-qt; (2) 1-gal.
Chloroform; 1-qt.
DDT (liquid household spray); 1-qt.
Tetrahydrofuran; 1-gal.
Trichlorotriflouroethane; 1-gal.
PEG-400; 1-qt.
Silicon fluid; (3) 1-qt.
2-methyl-2,4-pentanediol
Sodium formate; (2) 1-gal.
Sodium silicate solution; 1-gal. and 1-qt.
Carbon disulfide; 1-qt.
Drierite; 1-gal.
Charcoal; 1-gal.
Witconate AQS/Witco Acid
Induetrine; 1-pt.
Emulsifier 4
Hystrene; (2) 1-qt.
Amphoteric L
Gelatin capsules
Amonium hydroxide; 1-gal.
Heavy mineral oil; 1-gal.
Glyme; 1-qt.
Sodium thiosulfite; (4) 1-qt.
Potassium ferricyanide; 1-qt.
Potassium chloride; 1-qt.
Potassium thiocyanite; 1-qt.
Phthalic Anhydride; 1-qt.
Bromo-benzene; 1-qt.
Diglyme; 1-qt.
Phosphoric acid-85%; 1-qt.
Chromium trioxide; 1-qt.
Ether; 1-qt. can
1,2,4-trichlorobenzene; (2) 1-qt.
Sodium sulfate; 1-qt.

BUILDING #5 INVENTORY (continued)

Phenolphthalein Solution-1%; 1-qt.
n-amyul alcohol; 1-qt.
Titanium sulfate; 1-qt.
Starch indicator solution; 1-qt.
Amonium chloride; 1-qt.
Iodine solution; 1-qt.
Florisil; 1-qt.
1,4-dioxane; 1-gal. can
Acetic acid glacial
Divinyl benzene; broken bottle and crystalized
Methanol; 1-gal.

Cardboard box of following (< 8 oz. bottles):

Potassium iodide (2)
40% polystyrene/33% gasoline/21% benzene
Potassium thiocyanite
Sodium hydroxide
Aluminum slufate
Nickel powder
Hydrochloric acid
Glycerine
Glacial acetic acid (2)
"Metals" (hand-written label)
Tonsil
Glass beads
Magnesium metal
Rosaniline chloride
Potassium silicate
Acetic anhydride
Zinc metal

Unmarked:

1-gal. coffee can of solid on bottom and overflowing with white crystals that have spilled onto table

BUILDING #6

Approximately 25 various-sized drums, many with rusted, illegible lables; some legible lables were:

DCI-6A-flammable liquid/organic acids and xylenes; full 55-gal.
Glacial acetic acid-corrosive; full 55-gal.
Boiler Water Treatment - eye and skin irritant; (3) 55-gal. rusted drums with red crystal substance spilled out
National Aluminate Co. (NALCO); 55-gal.
Ethyl, multi-purpose additive; 55-gal.
Ethyl Red Dye; 30-gal.
Anti-Slip Floor Finish; 30-gal.
Bonding Mortar; 2 1/2-gal.
(1) 30-gal. glass jug wrapped in wood and containing unknown clear liquid

Other product names or descriptions noted on several full or partially full drums were:

- rust inhibitor
- santolene
- gasoline antioxidant
- multi-purpose additives

Several horizontal metal tanks (approximately 55 - 100 gallons) outside the building; one tank may have product.

BUILDING #7
(See Figure #3)

Room A:

Primarily empty boxes and trash
Several gas cans
3-gallon sprayer

Room B:

100's of stacked bags of white powder, marked "Mill White"
Bags of rock salt
Pile of pipe wrapping - white, fibrous material, presumably containing asbestos

Room C:

(22) full 55-gallon metal drums, containing amber sludge and/or oil; several drums marked flammable, but most rusted with illegible labels. Two labels were:

Tretolite Division; Demulsifier
DS-655-54-1-001
may burn at elevated temperatures

?? rosura ? AA57
Lot B? 265- M660-610
flammable liquid; NOS

(7) basically empty 250- to 500-gallon metal tanks

Room D:

Buckets of dried paint
Wood pallets and trash

Room E:

1000's of empty quart cans that had fallin through the 2nd floor (appeared to never have contained product)
(1) 55-gallon drum - "Tretolite"
(1) 55-gallon drum - "Boiler Wall Cement"
Large pile of debris (trash, tin, building materials, fiberglass insulation, etc.) and:
- bags of finishing cement
- bags of gravelly substance labeled "Kaiser Refractories"
- boxed and unboxed pipe wrapping; several boxes labeled as containing asbestos

BUILDING #7 INVENTORY (continued)

Room F:

No containers; metal debris only

Outside:

Several drums and a small tank

BUILDING #8

(3) metal tanks - 2 may be water softeners; 1 contained a dark sludge
(1) large open poly tank with a white sludge on bottom, rusty liquid on top
(2) 55-gallon drums with oily substance
(2) 20-gallon poly drums in metal overpacks, containing fluids
Deteriorating pipe wrap hanging from pipes, ceiling and on floor, presumably asbestos
Oily substance oozing into foundation wall

BUILDING #9

~ 50 deteriorating bags of activated carbon
(5) drums labeled methanol - 2 empty
(2) unlabeled bottles - one covered with white crystals
1-gallon plastic container of clear liquid
(6) 5-gallon buckets of white powder in small adjacent building

BUILDING #10

Several small bottles of cleaners, spot remover, duplicating fluid, rust inhibitor.

BUILDING #11

(4) filled, 55-gallon drums: two were labeled:
- MSA oil
- rust corrosion inhibitor

Deteriorating pipe wrapping overhead, on floor, and outside - presumably asbestos
Oil-filled trench around southeast exterior corner of building.

BUILDING #12

No containers/chemicals; only strip charts, meters, logbooks, etc.

BUILDING #13

No containers/chemicals; only trash, tires, books, files, etc.

APPENDIX B

FIELD SCREENING DATA SUMMARY

SITE NAME: MARCO

DATE: 11/17/92

TDD#: TO7-9211-001

PAN#: EKSØ368SAA

ECOLOGY & ENVIRONMENT, INC.
TAT 7 FIELD SCREENING DATA SUMMARY SHEET

TEST SAMPLE	CORROSIVE Y/N	CORROSIVE pH	FLAMMABILITY FLAMMABLE	FLAMMABILITY FLASHPOINT	OXIDIZER	WATER SOLUBLE	WATER INSOLUBLE	REACTIVE	HALIDE	SULFIDE	CYANIDE	OTHER/COMMENTS (OVA/HNU READINGS, DRAEGER, ETC.)
1-2	NO	7	Yes	< 59°F	NO		✓ Sinks	NO	—	—	—	HNU-300 Liquid
1-3	NO	2.5	NO	—	NO	✓		NO	—	—	—	HNU-0 Liquid
1-4	NO	7	NO	—	NO		✓	NO	—	—	—	Char Test - no change Solid
1-5	NO	7.5	NO	—	NO	✓		NO	—	—	—	HNU-0 Clear Liquid
1-6	NO	6.5	Yes	< 59°F	NO		✓ Floats	NO	—	—	—	HNU-200 Yellow Clear Solvent odor ✓ Liquid
2U1	NO	7	Yes	75°F	NO		✓ Floats	NO	—	—	—	HNU-200 Petroleum solvent odor Yellow clear Liquid
2U2	NO	7	Yes	70°F	NO		✓ Floats	NO	—	—	—	HNU-130 petroleum odor Light Yellow clear liquid.
2D1	NO	6.5	Yes	>185°F	NO		✓ Floats	NO	—	—	—	HNU-2ppm oily odor Dark Amber Liquid
2D2	NO	7	Yes	>145°F	NO		✓	NO	—	—	—	HNU 25 Tarlike Black Tarlike
3B1	NO	7	Yes	>170°F	NO		✓ Floats	NO	—	—	—	HNU 0 Amber oil-like
3C1	NO	7	Yes	140°F	NO		✓ Floats	NO	—	—	—	HNU 100 Amber Solvent like
3C2	NO	7	Yes	>145°F	NO		✓ Float	NO	—	—	—	Amber Thin solvent like liquid
3C3	NO	7.0	Yes	100°F	NO	NO	✓ Floats	NO	—	—	—	Black Thick Oil-like
3D1	NO	7.5	NO	—	NO		✓	NO	—	—	—	Yellow Powder
3D2	NO	7	Yes	<65°F	NO		✓	NO	—	NO	—	Thick viscous Amber

5/91

SITE NAME: MARCO

DATE: 11/17/92

TDD#: T07-9211-001

PAN#: EKS 03685AA

ECOLOGY & ENVIRONMENT, INC.
TAT 7 FIELD SCREENING DATA SUMMARY SHEET

SAMPLE	CORROSIVE Y/N	pH	FLAMMABILITY: FLAMMABLE	FLASHPOINT	OXIDIZER	WATER: SOLUBLE	INSOLUBLE	REACTIVE	HALIDE	SULFIDE	CYANIDE	OTHER/COMMENTS (OVA/HNU READINGS, DRAEGER, ETC.)
3D3	No ?	? No	No	—	No		✓ Floats	No	—	No	—	white powder
3D4	No	7	Yes	>150°F	No		✓ Floats	No	—	—	—	Black oil-like
3D5	No	4	No	—	No	✓		No	—	—	—	Pink transparent liquid
3D6	No	7	Yes	80°F	No		✓ Floats	No	—	—	—	Clear thin liquid
3D7	No	7	Yes	<75°F	No		✓ Floats	No	—	—	—	Toluene solvent? same as above
3D8	No	7	Yes	115°F	No		✓ sinks	No	—	—	—	Clear liquid
3D9	No	7	Yes	>155°F	No		✓ Floats	No	—	—	—	HNU 2ppm Dark Purple oily
3D10	No	7	No	—	No	✓		No	—	—	—	HNU-0 Clear liquid-crystals init
3D11	Yes	14	No	—	No	✓		No	—	—	—	white powder
3D12	No	6	No	—	No		✓	No	—	—	—	white powder
3D13	No	7	Yes	75°F	No		✓ Floats	No	—	—	—	HNU 200 Clear light yellow liquid
3D14	No	7	Yes	105°F	No		✓ Floats	No	—	—	—	HNU 150 clear thin liquid
3D15	Yes	14	No	—	No	✓		No	—	—	—	Clear liquid
3F1	No	7	Yes	120°F	Yes	✓		No	—	—	—	HNU 100 clear liquid
3F2	No	7.5	No	—	No	✓		No	—	—	—	HNU 0 Clear liquid

5/91

SITE NAME: MARCO

DATE: 11/17/92

TDD#: T07-9211-001

PAN#: EKS 0368SAA

ECOLOGY & ENVIRONMENT, INC.
TAT 7 FIELD SCREENING DATA SUMMARY SHEET

SAMPLE	CORROSIVE Y/N	pH	FLAMMABILITY: FLAMMABLE	FLASHPOINT	OXIDIZER	WATER: SOLUBLE	INSOLUBLE	REACTIVE	HALIDE	SULFIDE	CYANIDE	OTHER/COMMENTS (OVA/HNU READINGS, DRAEGER, ETC.)	
3F3	N	7	No	—	No	✓		NO	—	—	—	HNU 0	Clear, orange Liquid
3F4	N	7	No	—	No	✓		No	—	—	—	HNU = 0	Light Amber Liquid
3F5	N	4	NO	—	NO	✓		NO	—	—	—	HNU 10	Light Amber Liquid
6-1	Y	14	NO	—	Yes	✓		NO	—	—	—	HNU-6	Light Amber Liquid
6-2	N	9	NO	—	No	✓ partially		NO	—	—	—	HNU-50	Rusty orange crystallines
6-3	N	7	Yes	>145°F	NO		✓ Float	No	—	—	—	HNU-50	Amber thick Liquid
6-4	N	10	Yes	<75°F	No	Emulsified		NO	—	No	—	HNU-65	Orange orange thick liquid
6-5	Y	13	Yes	160°F	NO	Emulsified		No	—	NO	—	HNU-120	Black oily
6-6	N	3	No	—	NO	✓		NO	—	—	—	HNU-0	Clear Liquid
Asbestos												positive for Amosite or crocidolite	
Asbestos 7E-1												Slight for Amosite or crocidolite	
7-C-1	Y	13	Yes	—	No		✓ Float	No	—	—	—	Clor-n- Oil. inconclusive	
7-C-2	N	7	Yes	—	NO		✓ Float	NO	—	—	—	PCB possible Oil like >50ppm Substance	

Drums

✓ spilling from 3 drums

55 gal

55-gal.

55 gal. drum

30-gal glass jug in wood protective

5 Drums

1 Drum

Composite from drums

Unused

5/91

SITE NAME: MARCO

DATE: 11/18/92

TDD#: T07-9211-001

PAN#: EKS 0368SAA

ECOLOGY & ENVIRONMENT, INC.
TAT 7 FIELD SCREENING DATA SUMMARY SHEET

TEST SAMPLE	CORROSIVE Y/N	CORROSIVE pH	FLAMMABILITY FLAMMABLE	FLAMMABILITY FLASHPOINT	OXIDIZER	WATER SOLUBLE	WATER INSOLUBLE	REACTIVE	HALIDE	SULFIDE	CYANIDE	OTHER/COMMENTS (OVA/HNU READINGS, DRAEGER, ETC.)
OS-1 (drums near oil-separator)	N	4	No		No	✓		No	—	—	—	Drum near oil-separator
OS-2 "	N	7	No		No	✓		No	—	—	—	Drum near oil seperator
BH-2 (drums in Boiler House)	Y	14	No		No	✓		No	—	—	—	Drum from Boiler House (Poly in metal)

ANALYSIS REQUEST REPORT

VALIDATED DATA

FOR ACTIVITY: NBX02

BAILEY. C.

01/22/93 12:00:11

ALL REAL SAMPLES AND FIELD Q.C.

* FINAL REPORT

FY: 93 ACTIVITY: NBX02 DESCRIPTION: MARCO PETROLEUM LOCATION: NEWTON KANSAS

STATUS: ACTIVE TYPE: SAMPLING - IN HOUSE ANALYSIS PROJECT: A36

LABO DUE DATE IS 1/19/93. REPORT DUE DATE IS 5/17/93.

INSPECTION DATE: 11/18/92 ALL SAMPLES RECEIVED DATE: 11/20/92

ALL DATA APPROVED BY LABO DATE: 01/21/93 FINAL REPORT TRANSMITTED DATE: 00/00/00

EXPECTED LABO TURNAROUND TIME IS 60 DAYS EXPECTED REPORT TURNAROUND TIME IS 180 DAYS

ACTUAL LABO TURNAROUND TIME IS 62 DAYS ACTUAL REPORT TURNAROUND TIME IS 0 DAYS

SITE CODE: SITE:

SAMP NO.	QCC	M	DESCRIPTION	SAMPLE STATUS	#	CITY	STATE	AIRS/ STORET LOC NO	SECT	LAY-ER	BEG. DATE	BEG. TIME	END. DATE	END. TIME
001		W	MW-4	1		CHANUTE	KANSAS				11/16/92	15:25	/ /	:
002		W	RINSATE OF BAILER	1		CHANUTE	KANSAS				11/16/92	16:10	/ /	:
003		W	MW-3	1		CHANUTE	KANSAS				11/16/92	17:15	/ /	:
004		W	MW-1	1		CHANUTE	KANSAS				11/17/92	07:30	/ /	:
004	D	W	MW-1/DUPLICATE OF 004	1		CHANUTE	KANSAS				11/17/92	07:30	/ /	:
005		W	OIL-SEPARATOR/NE CORNER OF SITE	1		CHANUTE	KANSAS				11/17/92	08:30	/ /	:
006		W	OIL-SEPARATOR COLL.BASIN/NE CORNER	1		CHANUTE	KANSAS				11/17/92	08:40	/ /	:
007		W	DRAINAGE DITCH 100'E OF HWY 169	1		CHANUTE	KANSAS				11/17/92	08:40	/ /	:
008		S	BACKGROUND SAMPLE	1		CHANUTE	KANSAS				11/17/92	09:39	/ /	:
009		S	DRAINAGE DITCH BOUNDING-SITE NORTH	1		CHANUTE	KANSAS				11/17/92	10:00	/ /	:
010		S	DRAINAGE DITCH BOUNDING-SITE EAST	1		CHANUTE	KANSAS				11/17/92	10:15	/ /	:
011		S	TRANSECT LINE-DRAINAGE DITCH	1		CHANUTE	KANSAS				11/17/92	10:25	/ /	:
012		S	SE CORNER OF COLLECTION POND	1		CHANUTE	KANSAS				11/17/92	11:00	/ /	:
012	D	S	SE CORNER OF COLLECTION POND/DUPLIC.	1		CHANUTE	KANSAS				11/17/92	11:00	/ /	:
013		S	EAST EDGE OF BOTTOM SLUDGE PIT	1		CHANUTE	KANSAS				11/17/92	11:20	/ /	:
014		S	OILY WASTE FROM 20'X40' CEMENT TANK	1		CHANUTE	KANSAS				11/17/92	13:15	/ /	:
015		S	SOIL GRAB SAMPLE-SURFACE RUNOFF AREA	1		CHANUTE	KANSAS				11/17/92	14:20	/ /	:
016		S	ASBESTOS-FIB. INSULATION BLDG #5	1		CHANUTE	KANSAS				11/17/92	16:15	/ /	:
017		S	ASBESTOS-PIPE TANK COVERING	1		CHANUTE	KANSAS				11/17/92	16:20	/ /	:
018		S	ASBESTOS-INSULATION COVERING	1		CHANUTE	KANSAS				11/17/92	16:25	/ /	:
019	F	W	WATER TRIP BLANK	1		CHANUTE	KANSAS				11/16/92	08:00	/ /	:
020		W	DRUMS #7C-1 OILY DARK AMBER LIQUID	1		CHANUTE	KANSAS				11/17/92	08:00	/ /	:
021		W	DRUMS #7C-2 AMBER VISCOUS LIQUID	1		CHANUTE	KANSAS				11/18/92	08:10	/ /	:

VALIDATED DATA

SAMP. NO.	QCC	M	DESCRIPTION	SAMPLE STATUS	#	CITY	STATE	AIRS/ STORET LOC NO	SECT	LAY-ER	BEG. DATE	BEG. TIME	END. DATE	END. TIME
022		W	DRUMS #6-1 CLEAR YELLOWISH WATER LIQ.	1		CHANUTE	KANSAS				11/18/92	08:30	/ /	:
023		S	FLOOR SWEEPINGS FROM BLDGS. 1 & 3	1		CHANUTE	KANSAS				11/18/92	09:45	/ /	:
024		W	CONTAINER #3D-7, CLEAR LIQUID	1		CHANUTE	KANSAS				11/17/92	14:20	/ /	:
025		W	CONTAINER #1-2	1		CHANUTE	KANSAS				11/17/92	13:00	/ /	:

EXPLANATION OF CODES AND INFORMATION ON ANALYSIS REQUEST DETAIL REPORT

SAMPLE INFORMATION:

SAMP. NO. = SAMPLE IDENTIFICATION NUMBER (A 3-DIGIT NUMBER WHICH IN COMBINATION WITH THE ACTIVITY NUMBER AND QCC, PROVIDES AN UNIQUE NUMBER FOR EACH SAMPLE FOR IDENTIFICATION PURPOSES)

QCC = QUALITY CONTROL CODE (A ONE-LETTER CODE USED TO DESIGNATE SPECIFIC QC SAMPLES. THIS FIELD WILL BE BLANK FOR ALL NON-QC OR ACTUAL SAMPLES):
- A = TRUE VALUE FOR CALIBRATION STANDARD
- B = CONCENTRATION RESULTING FROM DUPLICATE LAB SPIKE
- C = MEASURED VALUE FOR CALIBRATION STANDARD
- D = MEASURED VALUE FOR FILED DUPLICATE
- F = MEASURED VALUE FOR FIELD BLANK
- G = MEASURED VALUE FOR METHOD STANDARD
- H = TRUE VALUE FOR METHOD STANDARD
- K = CONCENTRATION RESULTING FROM DUPLICATE FIELD SPIKE
- L = MEASURED VALUE FOR LAB DUPLICATE
- M = MEASURED VALUE FOR LAB BLANK
- N = MEASURED VALUE FOR DUPLICATE FIELD SPIKE
- P = MEASURED VALUE FOR PERFORMANCE STANDARD
- R = CONCENTRATION RESULTING FROM LAB SPIKE
- S = MEASURED VALUE FOR LAB SPIKE
- T = TRUE VALUE OF PERFORMANCE STANDARD
- W = MEASURED VALUE FOR DUPLICATE LAB SPIKE
- Y = MEASURED VALUE FOR FIELD SPIKE
- Z = CONCENTRATION RESULTING FROM FIELD SPIKE

M = MEDIA CODE (A ONE-LETTER CODE DESIGNATING THE MEDIA OF THE SAMPLE):
- A = AIR
- H = OTHER (DOES NOT FIT ANY OTHER CATEGORY)
- S = SOLID (SOIL, SEDIMENT, SLUDGE)
- T = TISSUE (PLANT & ANIMAL)
- W = WATER (GROUND WATER, SURFACE WATER, WASTE WATER, DRINKING WATER)

DESCRIPTION = A SHORT DESCRIPTION OF THE LOCATION WHERE SAMPLE WAS COLLECTED

AIRS/STORET LOC. NO. = THE SPECIFIC LOCATION IDENTIFICATION NUMBER FOR EITHER OF THESE NATIONAL DATABASE SYSTEMS, AS APPROPRIATE

DATE/TIME INFORMATION = SPECIFIC INFORMATION REGARDING WHEN THE SAMPLE WAS COLLECTED
- BEG. DATE = DATE SAMPLING WAS STARTED
- BEG. TIME = TIME SAMPLING WAS STARTED
- END DATE = DATE SAMPLING WAS COMPLETED
- END TIME = TIME SAMPLING WAS COMPLETED
- NOTE: A GRAB SAMPLE WILL CONTAIN ONLY BEG. DATE/TIME
  A TIMED COMPOSITE SAMPLE WILL CONTAIN BOTH BEG AND END DATE/TIME TO DESIGNATE DURATION OF SAMPLE COLLECTION

OTHER CODES:
- V = VALIDATED

ANALYTICAL RESULTS/MEASUREMENTS INFORMATION:

COMPOUND = MGP (MEDIA-GROUP-PARAMETER) CODE AND NAME OF THE MEASURED CONSTITUENT OR CHARACTERISTIC OF EACH SAMPLE

UNITS = SPECIFIC UNITS IN WHICH RESULTS ARE REPORTED:
- C = CENTIGRADE (CELSIUS) DEGREES
- CFS = CUBIC FEET PER SECOND
- GPM = GALLONS PER MINUTE
- IN = INCHES
- I.D. = SPECIES IDENTIFICATION
- KG = KILOGRAM
- L = LITER
- LB = POUNDS
- MG = MILLIGRAMS (1 X 10-3 GRAMS)
- MGD = MILLION GALLONS PER DAY
- MPH = MILES PER HOUR
- MV = MILLIVOLT
- M/F = MALE/FEMALE
- M2 = SQUARE METER
- M3 = CUBIC METER
- NA = NOT APPLICABLE
- NG = NANOGRAMS (1 X 10-9 GRAMS)
- NTU = NEPHELOMETRIC TURBIDITY UNITS
- PC/L = PICO (1 X 10-12) CURRIES PER LITER
- PG = PICOGRAMS (1 X 10-12 GRAMS)
- P/CM2 = PICOGRAMS PER SQUARE CENTIMETER
- SCM = STANDARD CUBIC METER (1 ATM, 25 C)
- SQ FT = SQUARE FEET
- SU = STANDARD UNITS (PH)
- UG = MICROGRAMS (1 X 10-6 GRAMS)
- UMHOS = MICROMHOS/CM (CONDUCTIVITY UNITS)
- U/CC2 = MICROGRAMS PER 100 SQUARE CENTIMETERS
- U/CM2 = MICROGRAMS PER SQUARE CENTIMETER
- 1000G = 1000 GALLONS
- +/- = POSITIVE/NEGATIVE
- # = NUMBER

DATA QUALIFIERS = SPECIFIC CODES USED IN CONJUNCTION WITH DATA VALUES TO PROVIDE ADDITIONAL INFORMATION ON THE REPORTED RESULTS, OR USED TO EXPLAIN THE ABSENCE OF A SPCIFIC VALUE:
- BLANK = IF FIELD IS BLANK, NO REMARKS OR QUALIFIERS ARE PERTINENT. FOR FINAL REPORTED DATA, THIS MEANS THAT THE VALUES HAVE BEEN REVIEWED AND FOUND TO BE ACCEPTABLE FOR USE.
- I = INVALID SAMPLE/DATA - VALUE NOT REPORTED
- J = DATA REPORTED BUT NOT VALID BY APPROVED QC PROCEDURES
- K = ACTUAL VALUE OF SAMPLE IS < VALUE REPORTED
- L = ACTUAL VALUE OF SAMPLE IS > VALUE REPORTED
- M = DETECTED BUT BELOW THE LEVEL OF REPORTED VALUE FOR ACCURATE QUANTIFICATION
- O = PARAMETER NOT ANALYZED
- U = ACTUAL VALUE OF SAMPLE IS < THE MEASUREMENT DETECTION LIMIT (REPORTED VALUE)

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	001		002		003		004		004D	
WF01 TEMPERATURE, WATER	'C	62.1				58.0		54.1		54.1	
WF05 PH, FIELD	SU	6.55				7.10		6.42		6.42	
WF10 CONDUCTIVITY (FIELD)	UMHOS	1390				510		1380		1380	
WS01 PHENOL, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS04 CHLOROPHENOL, 2-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS06 DICHLOROBENZENE,1,4-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS07 BENZYL ALCOHOL	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS12 N-NITROSODIPROPYLAMINE	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS13 HEXACHLOROETHANE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS14 NITROBENZENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS15 ISOPHORONE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS16 NITROPHENOL,2-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS18 BENZOIC ACID, BY GC/MS	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS20 DICHLOROPHENOL, 2,4-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS22 NAPHTHALENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	19.0		21.0	
WS23 CHLOROANILINE,4-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	001		002		003		004		004D	
WS25 PHENOL,4-CHLORO-3-METHYL	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS26 METHYLNAPHTHALENE, 2-	UG/L	33.0	U	10.0	U	10.0	U	13.0		14.0	
WS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS28 TRICHLOROPHENOL,2,4,6	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS29 TRICHLOROPHENOL,2,4,5	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS30 CHLORONAPHTHALENE, 2-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS31 NITROANILINE,2-(ORTHO)	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS33 ACENAPHTHYLENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS34 NITROANILINE,3-	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS35 ACENAPHTHENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS36 DINITROPHENOL,2,4, BY GC/MS	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS37 NITROPHENOL,4-	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS38 DIBENZOFURAN	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS39 DINITROTOLUENE,2,4, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS40 DINITROTOLUENE,2,6-	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS41 PHTHALATE, DIETHYL, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS43 FLUORENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS44 NITROANILINE,4-	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS45 PHENOL,4,6-DINITRO-2-METHYL	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS47 ETHER, 4-BROMOPHENYL PHENYL	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS48 HEXACHLOROBENZENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS49 PENTACHLOROPHENOL, BY GC/MS	UG/L	167	U	50.0	U	50.0	U	50.0	U	50.0	U
WS50 PHENANTHRENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	001		002		003		004		004D	
WS51 ANTHRACENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS53 FLUORANTHENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS54 PYRENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS55 PHTHALATE, BUTYL BENZYL	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS56 DICHLOROBENZIDINE, 3,3'	UG/L	67.0	U	20.0	U	20.0	U	20.0	U	20.0	U
WS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS59 CHRYSENE, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS63 PYRENE, BENZO(A), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS64 PYRENE, INDENO(1,2,3-CD)	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/L	33.0	U	10.0	U	10.0	U	10.0	U	10.0	U
WS67 CARBAZOLE	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	N/A	O
WV03 CHLOROMETHANE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U	100	U	100	U
WV04 BROMOMETHANE, BY GC/MS	UG/L	20.0	U	20.0	U	20.0	U	200	U	200	U
WV05 VINYL CHLORIDE, BY GC/MS	UG/L	15.0	U	15.0	U	15.0	U	150	U	150	U
WV06 CHLOROETHANE, BY GC/MS	UG/L	15.0	U	15.0	U	15.0	U	150	U	150	U
WV07 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/L	10.0	U	10.0	U	10.0	U	100	U	100	U
WV08 DICHLOROETHYLENE,1,1-	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV09 DICHLOROETHANE,1,1, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV10 DICHLOROETHYLENE, 1,2, TOTAL	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV11 CHLOROFORM, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	001		002		003		004		004D	
WV12 DICHLOROETHANE,1,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV13 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV14 CARBON TETRACHLORIDE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV15 BROMODICHLOROMETHANE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV16 DICHLOROPROPANE,1,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV17 BENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	901		972	
WV19 TRICHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV20 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV21 DIBROMOCHLOROMETHANE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV22 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV24 BROMOFORM, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV25 TETRACHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV26 TOLUENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV27 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV28 CHLOROBENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV29 ETHYL BENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV30 ACETONE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U	132	U	271	U
WV31 CARBON DISULFIDE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV32 METHYL ETHYL KETONE (2-BUTANONE)	UG/L	10.0	U	10.0	U	10.0	U	100	U	100	U
WV34 HEXANONE, 2-	UG/L	10.0	U	10.0	U	10.0	U	100	U	100	U
WV35 4-METHYL-2-PENTANONE	UG/L	10.0	U	10.0	U	10.0	U	100	U	100	U
WV36 STYRENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV37 XYLENES, TOTAL, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV40 DICHLOROPROPYLENE,TRANS-1,3	UG/L	5.0	U	5.0	U	5.0	U	50.0	U	50.0	U
WV67 XYLENE, M AND/OR P	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	N/A	O
WV70 XYLENE, ORTHO	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	N/A	O

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBXO2 VALIDATED DATA

COMPOUND	UNITS	001		002		003		004		004D	
WV72 DICHLOROBENZENE,1,4-(PARA)	UG/L	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
WV74 DICHLOROBENZENE,1,3-(META)	UG/L	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
WV77 DICHLOROBENZENE,1,2-(ORTHO)	UG/L	N/A	0	N/A	0	N/A	0	N/A	0	N/A	0
ZZ01 SAMPLE NUMBER	NA	001		002		003		004		004	
ZZ02 ACTIVITY CODE	NA	NBXO2		NBXO2		NBXO2		NBXO2		NBXO2	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005	006	007	008		009	
SG07 SOLIDS, PERCENT	%				71.3		68.2	
SP17 PCB-AROCLOR 1016	UG/KG				49.0	U	49.0	U
SP18 PCB-AROCLOR 1221	UG/KG				42.0	U	42.0	U
SP19 PCB-AROCLOR 1232	UG/KG				14.0	U	14.0	U
SP20 PCB-AROCLOR 1242	UG/KG				13.4	U	13.4	U
SP21 PCB-AROCLOR 1248	UG/KG				19.0	U	19.0	U
SP22 PCB-AROCLOR 1254	UG/KG				6.34	U	6.34	U
SP23 PCB-AROCLOR 1260	UG/KG				8.80	U	8.80	U
SS01 PHENOL, BY GC/MS	UG/KG				9300	U	46300	U
SS02 CARBAZOLE	UG/KG				N/A	O	N/A	O
SS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG				9300	U	46300	U
SS04 CHLOROPHENOL, 2-	UG/KG				9300	U	46300	U
SS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG				9300	U	46300	U
SS06 DICHLOROBENZENE,1,4-	UG/KG				9300	U	46300	U
SS07 BENZYL ALCOHOL	UG/KG				9300	U	46300	U
SS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG				9300	U	46300	U
SS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG				9300	U	46300	U
SS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG				9300	U	46300	U
SS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG				9300	U	46300	U
SS12 N-NITROSODIPROPYLAMINE	UG/KG				9300	U	46300	U
SS13 HEXACHLOROETHANE, BY GC/MS	UG/KG				9300	U	46300	U
SS14 NITROBENZENE, BY GC/MS	UG/KG				9300	U	46300	U
SS15 ISOPHORONE, BY GC/MS	UG/KG				9300	U	46300	U
SS16 NITROPHENOL,2-	UG/KG				9300	U	46300	U
SS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG				9300	U	46300	U
SS18 BENZOIC ACID, BY GC/MS	UG/KG				45100	U	231000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005	006	007	008		009	
SS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG				9300	U	46300	U
SS20 DICHLOROPHENOL, 2,4-	UG/KG				9300	U	46300	U
SS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG				9300	U	46300	U
SS22 NAPHTHALENE, BY GC/MS	UG/KG				9300	U	46300	U
SS23 CHLOROANILINE,4-	UG/KG				9300	U	46300	U
SS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG				9300	U	46300	U
SS25 PHENOL,4-CHLORO-3-METHYL	UG/KG				9300	U	46300	U
SS26 METHYLNAPHTHALENE, 2-	UG/KG				9300	U	46300	U
SS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG				9300	U	46300	U
SS28 TRICHLOROPHENOL,2,4,6	UG/KG				9300	U	46300	U
SS29 TRICHLOROPHENOL,2,4,5	UG/KG				45100	U	22200	U
SS30 CHLORONAPHTHALENE, 2-	UG/KG				9300	U	46300	U
SS31 NITROANILINE,2-	UG/KG				45100	U	22200	U
SS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG				9300	U	46300	U
SS33 ACENAPHTHYLENE, BY GC/MS	UG/KG				9300	U	46300	U
SS34 NITROANILINE,3-	UG/KG				45100	U	22200	U
SS35 ACENAPHTHENE, BY GC/MS	UG/KG				9300	U	46300	U
SS36 DINITROPHENOL,2,4, BY GC/MS	UG/KG				45100	U	22200	U
SS37 NITROPHENOL,4-	UG/KG				45100	U	22200	U
SS38 DIBENZOFURAN	UG/KG				9300	U	46300	U
SS39 DINITROTOLUENE,2,4, BY GC/MS	UG/KG				9300	U	46300	U
SS40 DINITROTOLUENE,2,6-	UG/KG				9300	U	46300	U
SS41 PHTHALATE, DIETHYL, BY GC/MS	UG/KG				9300	U	46300	U
SS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG				9300	U	46300	U
SS43 FLUORENE, GC/MS	UG/KG				9300	U	46300	U
SS44 NITROANILINE,4-	UG/KG				45100	U	22200	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005	006	007	008	009
SS45 PHENOL,4,6-DINITRO-2-METHYL	UG/KG				45100 U	22200 U
SS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG				9300 U	46300 U
SS47 ETHER, 4-BROMOPHENYL PHENYL	UG/KG				9300 U	46300 U
SS48 HEXACHLOROBENZENE, BY GC/MS	UG/KG				9300 U	46300 U
SS49 PENTACHLOROPHENOL, BY GC/MS	UG/KG				45100 U	22200 U
SS50 PHENANTHRENE, BY GC/MS	UG/KG				9300 U	46300 U
SS51 ANTHRACENE, BY GC/MS	UG/KG				9300 U	46300 U
SS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG				9300 U	46300 U
SS53 FLUORANTHENE, BY GC/MS	UG/KG				9300 U	46300 U
SS54 PYRENE, BY GC/MS	UG/KG				9300 U	46300 U
SS55 PHTHALATE, BUTYL BENZYL	UG/KG				9300 U	46300 U
SS56 DICHLOROBENZIDINE, 3,3'	UG/KG				18600 U	93000 U
SS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/KG				9300 U	46300 U
SS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG				9300 U	46300 U
SS59 CHRYSENE, BY GC/MS	UG/KG				9300 U	46300 U
SS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG				9300 U	46300 U
SS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG				9300 U	46300 U
SS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG				9300 U	46300 U
SS63 PYRENE, BENZO(A), BY GC/MS	UG/KG				9300 U	46300 U
SS64 PYRENE, INDENO(1,2,3-CD)	UG/KG				9300 U	46300 U
SS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG				9300 U	46300 U
SS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG				9300 U	46300 U
SV54 HYDROCARBONS, TOTAL PETROLEUM	MG/KG				3000 U	3000 U
WS01 PHENOL, BY GC/MS	UG/L	10.0 U	10.0 U	10.0 U		
WS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/L	10.0 U	10.0 U	10.0 U		
WS04 CHLOROPHENOL, 2-	UG/L	10.0 U	10.0 U	10.0 U		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005		006		007		008	009
WS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS06 DICHLOROBENZENE,1,4-	UG/L	10.0	U	10.0	U	10.0	U		
WS07 BENZYL ALCOHOL	UG/L	10.0	U	10.0	U	10.0	U		
WS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/L	10.0	U	10.0	U	10.0	U		
WS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/L	10.0	U	10.0	U	10.0	U		
WS12 N-NITROSODIPROPYLAMINE	UG/L	10.0	U	10.0	U	10.0	U		
WS13 HEXACHLOROETHANE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS14 NITROBENZENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS15 ISOPHORONE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS16 NITROPHENOL,2-	UG/L	10.0	U	10.0	U	10.0	U		
WS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS18 BENZOIC ACID, BY GC/MS	UG/L	50.0	U	50.0	U	50.0	U		
WS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS20 DICHLOROPHENOL, 2,4-	UG/L	10.0	U	10.0	U	10.0	U		
WS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS22 NAPHTHALENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS23 CHLOROANILINE,4-	UG/L	10.0	U	10.0	U	10.0	U		
WS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS25 PHENOL,4-CHLORO-3-METHYL	UG/L	10.0	U	10.0	U	10.0	U		
WS26 METHYLNAPHTHALENE, 2-	UG/L	10.0	U	10.0	U	10.0	U		
WS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS28 TRICHLOROPHENOL,2,4,6	UG/L	10.0	U	10.0	U	10.0	U		
WS29 TRICHLOROPHENOL,2,4,5	UG/L	50.0	U	50.0	U	50.0	U		
WS30 CHLORONAPHTHALENE, 2-	UG/L	10.0	U	10.0	U	10.0	U		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005		006		007		008	009
WS31 NITROANILINE,2-(ORTHO)	UG/L	50.0	U	50.0	U	50.0	U		
WS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS33 ACENAPHTHYLENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS34 NITROANILINE,3-	UG/L	50.0	U	50.0	U	50.0	U		
WS35 ACENAPHTHENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS36 DINITROPHENOL,2,4, BY GC/MS	UG/L	50.0	U	50.0	U	50.0	U		
WS37 NITROPHENOL,4-	UG/L	50.0	U	50.0	U	50.0	U		
WS38 DIBENZOFURAN	UG/L	10.0	U	10.0	U	10.0	U		
WS39 DINITROTOLUENE,2,4, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS40 DINITROTOLUENE,2,6-	UG/L	10.0	U	10.0	U	10.0	U		
WS41 PHTHALATE, DIETHYL, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/L	10.0	U	10.0	U	10.0	U		
WS43 FLUORENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS44 NITROANILINE,4-	UG/L	50.0	U	50.0	U	50.0	U		
WS45 PHENOL,4,6-DINITRO-2-METHYL	UG/L	50.0	U	50.0	U	50.0	U		
WS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS47 ETHER, 4-BROMOPHENYL PHENYL	UG/L	10.0	U	10.0	U	10.0	U		
WS48 HEXACHLOROBENZENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS49 PENTACHLOROPHENOL, BY GC/MS	UG/L	50.0	U	50.0	U	50.0	U		
WS50 PHENANTHRENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS51 ANTHRACENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS53 FLUORANTHENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS54 PYRENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS55 PHTHALATE, BUTYL BENZYL	UG/L	10.0	U	10.0	U	10.0	U		
WS56 DICHLOROBENZIDINE, 3,3'	UG/L	20.0	U	20.0	U	20.0	U		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005		006		007		008	009
WS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS59 CHRYSENE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS63 PYRENE, BENZO(A), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS64 PYRENE, INDENO(1,2,3-CD)	UG/L	10.0	U	10.0	U	10.0	U		
WS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WS67 CARBAZOLE	UG/L	N/A	O	N/A	O	N/A	O		
WV03 CHLOROMETHANE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WV04 BROMOMETHANE, BY GC/MS	UG/L	20.0	U	20.0	U	20.0	U		
WV05 VINYL CHLORIDE, BY GC/MS	UG/L	15.0	U	15.0	U	15.0	U		
WV06 CHLOROETHANE, BY GC/MS	UG/L	15.0	U	15.0	U	15.0	U		
WV07 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/L	10.0	U	10.0	U	10.0	U		
WV08 DICHLOROETHYLENE,1,1-	UG/L	5.0	U	5.0	U	5.0	U		
WV09 DICHLOROETHANE,1,1, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV10 DICHLOROETHYLENE, 1,2, TOTAL	UG/L	5.0	U	5.0	U	5.0	U		
WV11 CHLOROFORM, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV12 DICHLOROETHANE,1,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV13 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV14 CARBON TETRACHLORIDE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV15 BROMODICHLOROMETHANE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV16 DICHLOROPROPANE,1,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV17 BENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	005		006		007		008	009
WV19 TRICHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U		
WV20 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV21 DIBROMOCHLOROMETHANE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV22 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV24 BROMOFORM, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV25 TETRACHLOROETHYLENE	UG/L	5.0	U	5.0	U	5.0	U		
WV26 TOLUENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV27 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV28 CHLOROBENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV29 ETHYL BENZENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV30 ACETONE, BY GC/MS	UG/L	10.0	U	10.0	U	10.0	U		
WV31 CARBON DISULFIDE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV32 METHYL ETHYL KETONE (2-BUTANONE)	UG/L	10.0	U	10.0	U	10.0	U		
WV34 HEXANONE, 2-	UG/L	10.0	U	10.0	U	10.0	U		
WV35 4-METHYL-2-PENTANONE	UG/L	10.0	U	10.0	U	10.0	U		
WV36 STYRENE, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV37 XYLENES, TOTAL, BY GC/MS	UG/L	5.0	U	5.0	U	5.0	U		
WV40 DICHLOROPROPYLENE,TRANS-1,3	UG/L	5.0	U	5.0	U	5.0	U		
WV67 XYLENE, M AND/OR P	UG/L	N/A	O	N/A	O	N/A	O		
WV70 XYLENE, ORTHO	UG/L	N/A	O	N/A	O	N/A	O		
WV72 DICHLOROBENZENE,1,4-(PARA)	UG/L	N/A	O	N/A	O	N/A	O		
WV74 DICHLOROBENZENE,1,3-(META)	UG/L	N/A	O	N/A	O	N/A	O		
WV77 DICHLOROBENZENE,1,2-(ORTHO)	UG/L	N/A	O	N/A	O	N/A	O		
ZZ01 SAMPLE NUMBER	NA	005		006		007		008	009
ZZ02 ACTIVITY CODE	NA	NBX02		NBX02		NBX02		NBX02	NBX02

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	010		011		012		012D		013	
SG07 SOLIDS, PERCENT	%	58.4		65.9		39.3		30.3			
SP17 PCB-AROCLOR 1016	UG/KG	60.3	U	58.3	U	192	U	280	U	70.0	U
SP18 PCB-AROCLOR 1221	UG/KG	51.7	U	50.0	U	164	U	240	U	60.0	U
SP19 PCB-AROCLOR 1232	UG/KG	17.2	U	16.7	U	54.8	U	80.0	U	20.0	U
SP20 PCB-AROCLOR 1242	UG/KG	16.4	U	15.8	U	52.0	U	76.0	U	19.0	U
SP21 PCB-AROCLOR 1248	UG/KG	23.3	U	22.5	U	74.0	U	108	U	27.0	U
SP22 PCB-AROCLOR 1254	UG/KG	7.76	U	7.50	U	24.7	U	36.0	U	9.0	U
SP23 PCB-AROCLOR 1260	UG/KG	10.8	U	10.4	U	34.2	U	50.0	U	12.5	U
SS01 PHENOL, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS02 CARBAZOLE	UG/KG	N/A	O	N/A	O	N/A	O	N/A	O	N/A	O
SS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS04 CHLOROPHENOL, 2-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS06 DICHLOROBENZENE,1,4-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS07 BENZYL ALCOHOL	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS12 N-NITROSODIPROPYLAMINE	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS13 HEXACHLOROETHANE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS14 NITROBENZENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS15 ISOPHORONE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS16 NITROPHENOL,2-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS18 BENZOIC ACID, BY GC/MS	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	010		011		012		012D		013	
SS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS20 DICHLOROPHENOL, 2,4-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS22 NAPHTHALENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS23 CHLOROANILINE,4-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS25 PHENOL,4-CHLORO-3-METHYL	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS26 METHYLNAPHTHALENE, 2-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS28 TRICHLOROPHENOL,2,4,6	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS29 TRICHLOROPHENOL,2,4,5	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS30 CHLORONAPHTHALENE, 2-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS31 NITROANILINE,2-	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS33 ACENAPHTHYLENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS34 NITROANILINE,3-	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS35 ACENAPHTHENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS36 DINITROPHENOL,2,4, BY GC/MS	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS37 NITROPHENOL,4-	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS38 DIBENZOFURAN	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS39 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS40 DINITROTOLUENE,2,6-	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS41 PHTHALATE, DIETHYL, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS43 FLUORENE, GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS44 NITROANILINE,4-	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	010		011		012		012D		013	
SS45 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS47 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS48 HEXACHLOROBENZENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS49 PENTACHLOROPHENOL, BY GC/MS	UG/KG	285000	U	280000	U	2740000	U	4000000	U	1920000	U
SS50 PHENANTHRENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS51 ANTHRACENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS53 FLUORANTHENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS54 PYRENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS55 PHTHALATE, BUTYL BENZYL	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS56 DICHLOROBENZIDINE, 3,3'	UG/KG	11400	U	112000	U	1100000	U	1600000	U	132000	U
SS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS59 CHRYSENE, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS63 PYRENE, BENZO(A), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS64 PYRENE, INDENO(1,2,3-CD)	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	57000	U	56000	U	548000	U	800000	U	385000	U
SV54 HYDROCARBONS, TOTAL PETROLEUM	MG/KG	3000	U	3000	U	165400		150500			
ZZ01 SAMPLE NUMBER	NA	010		011		012		012		013	
ZZ02 ACTIVITY CODE	NA	NBX02		NBX02		NBX02		NBX02		NBX02	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	014		015		016	017	018
SB02 CHRYSOTILE, BULK	%					0.0	0.0	8
SB03 AMOSITE, BULK	%					0.0	15	0.0
SB04 CROCIDOLITE, BULK	%					0.0	0.0	0.0
SB05 TREMOLITE, BULK	%					0.0	0.0	0.0
SB06 ACTINOLITE, BULK	%					0.0	0.0	0.0
SB07 ANTHOPHYLLITE, BULK	%					0.0	0.0	0.0
SG07 SOLIDS, PERCENT	%			68.1				
SP17 PCB-AROCLOR 1016	UG/KG	70.0	U	64.8	U			
SP18 PCB-AROCLOR 1221	UG/KG	60.0	U	55.6	U			
SP19 PCB-AROCLOR 1232	UG/KG	20.0	U	18.5	U			
SP20 PCB-AROCLOR 1242	UG/KG	19.0	U	17.6	U			
SP21 PCB-AROCLOR 1248	UG/KG	27.0	U	25.0	U			
SP22 PCB-AROCLOR 1254	UG/KG	9.0	U	8.3	U			
SP23 PCB-AROCLOR 1260	UG/KG	12.5	U	11.6	U			
SS01 PHENOL, BY GC/MS	UG/KG	132000	U	122000	U			
SS02 CARBAZOLE	UG/KG	N/A	O	N/A	O			
SS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	132000	U	122000	U			
SS04 CHLOROPHENOL, 2-	UG/KG	132000	U	122000	U			
SS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	132000	U	122000	U			
SS06 DICHLOROBENZENE,1,4-	UG/KG	132000	U	122000	U			
SS07 BENZYL ALCOHOL	UG/KG	132000	U	122000	U			
SS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	132000	U	122000	U			
SS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	132000	U	122000	U			
SS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	132000	U	122000	U			
SS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	132000	U	122000	U			
SS12 N-NITROSODIPROPYLAMINE	UG/KG	132000	U	122000	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	014		015		016	017	018
SS13 HEXACHLOROETHANE, BY GC/MS	UG/KG	132000	U	122000	U			
SS14 NITROBENZENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS15 ISOPHORONE, BY GC/MS	UG/KG	132000	U	122000	U			
SS16 NITROPHENOL,2-	UG/KG	132000	U	122000	U			
SS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	132000	U	122000	U			
SS18 BENZOIC ACID, BY GC/MS	UG/KG	1920000	U	617000	U			
SS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	132000	U	122000	U			
SS20 DICHLOROPHENOL, 2,4-	UG/KG	132000	U	122000	U			
SS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	132000	U	122000	U			
SS22 NAPHTHALENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS23 CHLOROANILINE,4-	UG/KG	132000	U	122000	U			
SS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS25 PHENOL,4-CHLORO-3-METHYL	UG/KG	132000	U	122000	U			
SS26 METHYLNAPHTHALENE, 2-	UG/KG	132000	U	122000	U			
SS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS28 TRICHLOROPHENOL,2,4,6	UG/KG	132000	U	122000	U			
SS29 TRICHLOROPHENOL,2,4,5	UG/KG	1920000	U	617000	U			
SS30 CHLORONAPHTHALENE, 2-	UG/KG	132000	U	122000	U			
SS31 NITROANILINE,2-	UG/KG	1920000	U	617000	U			
SS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	132000	U	122000	U			
SS33 ACENAPHTHYLENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS34 NITROANILINE,3-	UG/KG	1920000	U	617000	U			
SS35 ACENAPHTHENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS36 DINITROPHENOL,2,4, BY GC/MS	UG/KG	1920000	U	617000	U			
SS37 NITROPHENOL,4-	UG/KG	1920000	U	617000	U			
SS38 DIBENZOFURAN	UG/KG	132000	U	122000	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	014		015		016	017	018
SS39 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	132000	U	122000	U			
SS40 DINITROTOLUENE,2,6-	UG/KG	132000	U	122000	U			
SS41 PHTHALATE, DIETHYL, BY GC/MS	UG/KG	132000	U	122000	U			
SS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	132000	U	122000	U			
SS43 FLUORENE, GC/MS	UG/KG	132000	U	122000	U			
SS44 NITROANILINE,4-	UG/KG	1920000	U	617000	U			
SS45 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	1920000	U	617000	U			
SS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	132000	U	122000	U			
SS47 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	132000	U	122000	U			
SS48 HEXACHLOROBENZENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS49 PENTACHLOROPHENOL, BY GC/MS	UG/KG	1920000	U	617000	U			
SS50 PHENANTHRENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS51 ANTHRACENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	132000	U	122000	U			
SS53 FLUORANTHENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS54 PYRENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS55 PHTHALATE, BUTYL BENZYL	UG/KG	132000	U	122000	U			
SS56 DICHLOROBENZIDINE, 3,3'	UG/KG	770000	U	247000	U			
SS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	132000	U	122000	U			
SS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	132000	U	122000	U			
SS59 CHRYSENE, BY GC/MS	UG/KG	132000	U	122000	U			
SS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	132000	U	122000	U			
SS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	132000	U	122000	U			
SS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	132000	U	122000	U			
SS63 PYRENE, BENZO(A), BY GC/MS	UG/KG	132000	U	122000	U			
SS64 PYRENE, INDENO(1,2,3-CD)	UG/KG	132000	U	122000	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	014		015		016	017	018
SS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	132000	U	122000	U			
SS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	132000	U	122000	U			
SV54 HYDROCARBONS, TOTAL PETROLEUM	MG/KG			118500				
ZZ01 SAMPLE NUMBER	NA	014		015		016	017	018
ZZ02 ACTIVITY CODE	NA	NBX02		NBX02		NBX02	NBX02	NBX02

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02

VALIDATED DATA

COMPOUND	UNITS	019F	020	021	022	023	
SM01 SILVER, TOTAL, BY ICAP	MG/KG					1.36	
SM02 ALUMINUM, TOTAL, BY ICAP	MG/KG					N/A	O
SM03 ARSENIC, TOTAL, BY ICAP	MG/KG					10.0	U
SM04 BARIUM, TOTAL, BY ICAP	MG/KG					42.3	
SM05 BERYLLIUM, TOTAL, BY ICAP	MG/KG					0.364	
SM06 CADMIUM, TOTAL, BY ICAP	MG/KG					2330	
SM07 COBALT, TOTAL, BY ICAP	MG/KG					74.8	
SM08 CHROMIUM, TOTAL, BY ICAP	MG/KG					881	
SM09 COPPER, TOTAL, BY ICAP	MG/KG					108	
SM10 IRON, TOTAL, BY ICAP	MG/KG					N/A	O
SM11 MANGANESE, TOTAL, BY ICAP	MG/KG					191	
SM12 MOLYBDENUM, TOTAL, BY ICAP	MG/KG					N/A	O
SM13 NICKEL, TOTAL, BY ICAP	MG/KG					8.56	
SM14 LEAD, TOTAL, BY ICAP	MG/KG					2290	
SM15 ANTIMONY, TOTAL, BY ICAP	MG/KG					10.0	U
SM16 SELENIUM, TOTAL, BY ICAP	MG/KG					10.0	U
SM17 TITANIUM, TOTAL, BY ICAP	MG/KG					N/A	O
SM18 THALLIUM, TOTAL, BY ICAP	MG/KG					N/A	O
SM19 VANADIUM, TOTAL, BY ICAP	MG/KG					9.40	
SM20 ZINC, TOTAL, BY ICAP	MG/KG					1080	
SM21 CALCIUM, TOTAL, BY ICAP	MG/KG					68.3	
SM22 MAGNESIUM, TOTAL, BY ICAP	MG/KG					40.0	U
SM23 SODIUM, TOTAL, BY ICAP	MG/KG					40.0	U
SM24 POTASSIUM, TOTAL, BY ICAP	MG/KG					N/A	O
SM34 MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG					17000	
SS01 PHENOL, BY GC/MS	UG/KG					3400	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F	020	021	022	023	
SS02 CARBAZOLE	UG/KG					N/A	O
SS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG					3400	U
SS04 CHLOROPHENOL, 2-	UG/KG					3400	U
SS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG					3400	U
SS06 DICHLOROBENZENE,1,4-	UG/KG					3400	U
SS07 BENZYL ALCOHOL	UG/KG					3400	U
SS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG					3400	U
SS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG					3400	U
SS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG					3400	U
SS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG					3400	U
SS12 N-NITROSODIPROPYLAMINE	UG/KG					3400	U
SS13 HEXACHLOROETHANE, BY GC/MS	UG/KG					3400	U
SS14 NITROBENZENE, BY GC/MS	UG/KG					3400	U
SS15 ISOPHORONE, BY GC/MS	UG/KG					3400	U
SS16 NITROPHENOL,2-	UG/KG					3400	U
SS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG					3400	U
SS18 BENZOIC ACID, BY GC/MS	UG/KG					17000	U
SS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG					3400	U
SS20 DICHLOROPHENOL, 2,4-	UG/KG					3400	U
SS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG					3400	U
SS22 NAPHTHALENE, BY GC/MS	UG/KG					3400	U
SS23 CHLOROANILINE,4-	UG/KG					3400	U
SS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG					3400	U
SS25 PHENOL,4-CHLORO-3-METHYL	UG/KG					3400	U
SS26 METHYLNAPHTHALENE, 2-	UG/KG					3400	U
SS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG					3400	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F	020	021	022	023	
SS28 TRICHLOROPHENOL.2.4.6	UG/KG					3400	U
SS29 TRICHLOROPHENOL.2.4.5	UG/KG					17000	U
SS30 CHLORONAPHTHALENE, 2-	UG/KG					3400	U
SS31 NITROANILINE.2-	UG/KG					17000	U
SS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG					3400	U
SS33 ACENAPHTHYLENE, BY GC/MS	UG/KG					3400	U
SS34 NITROANILINE.3-	UG/KG					17000	U
SS35 ACENAPHTHENE, BY GC/MS	UG/KG					3400	U
SS36 DINITROPHENOL.2.4, BY GC/MS	UG/KG					17000	U
SS37 NITROPHENOL.4-	UG/KG					17000	U
SS38 DIBENZOFURAN	UG/KG					3400	U
SS39 DINITROTOLUENE.2.4, BY GC/MS	UG/KG					3400	U
SS40 DINITROTOLUENE.2.6-	UG/KG					3400	U
SS41 PHTHALATE, DIETHYL, BY GC/MS	UG/KG					3400	U
SS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG					3400	U
SS43 FLUORENE, GC/MS	UG/KG					3400	U
SS44 NITROANILINE.4-	UG/KG					17000	U
SS45 PHENOL.4.6-DINITRO-2-METHYL	UG/KG					17000	U
SS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG					3400	U
SS47 ETHER, 4-BROMOPHENYL PHENYL	UG/KG					3400	U
SS48 HEXACHLOROBENZENE, BY GC/MS	UG/KG					3400	U
SS49 PENTACHLOROPHENOL, BY GC/MS	UG/KG					17000	U
SS50 PHENANTHRENE, BY GC/MS	UG/KG					3400	U
SS51 ANTHRACENE, BY GC/MS	UG/KG					3400	U
SS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG					3400	U
SS53 FLUORANTHENE, BY GC/MS	UG/KG					3400	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F	020	021	022	023
SS54 PYRENE, BY GC/MS	UG/KG					3400 U
SS55 PHTHALATE, BUTYL BENZYL	UG/KG					3400 U
SS56 DICHLOROBENZIDINE, 3,3'	UG/KG					6800 U
SS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/KG					3400 U
SS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG					3400 U
SS59 CHRYSENE, BY GC/MS	UG/KG					3400 U
SS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG					3400 U
SS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG					3400 U
SS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG					3400 U
SS63 PYRENE, BENZO(A), BY GC/MS	UG/KG					3400 U
SS64 PYRENE, INDENO(1,2,3-CD)	UG/KG					3400 U
SS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG					3400 U
SS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG					3400 U
WG22 FLASHPOINT (FLAMMABILITY)	C		52.0	33.0		
WG23 PH, LAB	SU		11.3	12.7		
WP17 PCB-AROCLOR 1016	UG/L		350 U	350 U	350 U	
WP18 PCB-AROCLOR 1221	UG/L		300 U	300 U	300 U	
WP19 PCB-AROCLOR 1232	UG/L		100 U	100 U	100 U	
WP20 PCB-AROCLOR 1242	UG/L		95 U	95.0 U	95.0 U	
WP21 PCB-AROCLOR 1248	UG/L		140 U	140 U	140 U	
WP22 PCB-AROCLOR 1254	UG/L		44 U	44.0 U	44.0 U	
WP23 PCB-AROCLOR 1260	UG/L		62 U	62.0 U	62.0 U	
WS01 PHENOL, BY GC/MS	UG/L		10000 U	20000 U	10000 U	
WS03 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/L		10000 U	20000 U	10000 U	
WS04 CHLOROPHENOL, 2-	UG/L		10000 U	20000 U	10000 U	
WS05 DICHLOROBENZENE,1,3-, BY GC/MS	UG/L		10000 U	20000 U	10000 U	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F	020		021		022		023
WS06 DICHLOROBENZENE,1,4-	UG/L		10000	U	20000	U	10000	U	
WS07 BENZYL ALCOHOL	UG/L		10000	U	20000	U	10000	U	
WS08 DICHLOROBENZENE,1,2-, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS09 CRESOL, ORTHO(2-METHYLPHENOL)	UG/L		10000	U	20000	U	10000	U	
WS10 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS11 CRESOL, PARA-(4-METHYLPHENOL)	UG/L		10000	U	20000	U	10000	U	
WS12 N-NITROSODIPROPYLAMINE	UG/L		10000	U	20000	U	10000	U	
WS13 HEXACHLOROETHANE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS14 NITROBENZENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS15 ISOPHORONE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS16 NITROPHENOL,2-	UG/L		10000	U	20000	U	10000	U	
WS17 DIMETHYLPHENOL,2,4, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS18 BENZOIC ACID, BY GC/MS	UG/L		50000	U	100000	U	50000	U	
WS19 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS20 DICHLOROPHENOL, 2,4-	UG/L		10000	U	20000	U	10000	U	
WS21 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS22 NAPHTHALENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS23 CHLOROANILINE,4-	UG/L		10000	U	20000	U	10000	U	
WS24 HEXACHLOROBUTADIENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS25 PHENOL,4-CHLORO-3-METHYL	UG/L		10000	U	20000	U	10000	U	
WS26 METHYLNAPHTHALENE, 2-	UG/L		10000	U	20000	U	10000	U	
WS27 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS28 TRICHLOROPHENOL,2,4,6	UG/L		10000	U	20000	U	10000	U	
WS29 TRICHLOROPHENOL,2,4,5	UG/L		50000	U	100000	U	50000	U	
WS30 CHLORONAPHTHALENE, 2-	UG/L		10000	U	20000	U	10000	U	
WS31 NITROANILINE,2-(ORTHO)	UG/L		50000	U	100000	U	50000	U	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F	020		021		022		023
WS32 PHTHALATE, DIMETHYL, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS33 ACENAPHTHYLENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS34 NITROANILINE,3-	UG/L		50000	U	100000	U	50000	U	
WS35 ACENAPHTHENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS36 DINITROPHENOL,2,4, BY GC/MS	UG/L		50000	U	100000	U	50000	U	
WS37 NITROPHENOL,4-	UG/L		50000	U	100000	U	50000	U	
WS38 DIBENZOFURAN	UG/L		10000	U	20000	U	10000	U	
WS39 DINITROTOLUENE,2,4, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS40 DINITROTOLUENE,2,6-	UG/L		10000	U	20000	U	10000	U	
WS41 PHTHALATE, DIETHYL, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS42 ETHER, 4-CHLOROPHENYL PHENYL	UG/L		10000	U	20000	U	10000	U	
WS43 FLUORENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS44 NITROANILINE,4-	UG/L		50000	U	100000	U	50000	U	
WS45 PHENOL,4,6-DINITRO-2-METHYL	UG/L		50000	U	100000	U	50000	U	
WS46 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS47 ETHER, 4-BROMOPHENYL PHENYL	UG/L		10000	U	20000	U	10000	U	
WS48 HEXACHLOROBENZENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS49 PENTACHLOROPHENOL, BY GC/MS	UG/L		50000	U	100000	U	50000	U	
WS50 PHENANTHRENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS51 ANTHRACENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS52 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS53 FLUORANTHENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS54 PYRENE, BY GC/MS	UG/L		10000	U	20000	U	10000	U	
WS55 PHTHALATE, BUTYL BENZYL	UG/L		10000	U	20000	U	10000	U	
WS56 DICHLOROBENZIDINE, 3,3'	UG/L		20000	U	40000	U	20000	U	
WS57 ANTHRACENE, BENZO(A), BY GC/MS	UG/L		10000	U	20000	U	10000	U	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F		020		021		022		023
WS58 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS59 CHRYSENE, BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS60 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS61 FLUORANTHENE, BENZO(B), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS62 FLUORANTHENE, BENZO(K), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS63 PYRENE, BENZO(A), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS64 PYRENE, INDENO(1,2,3-CD)	UG/L			10000	U	20000	U	10000	U	
WS65 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS66 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/L			10000	U	20000	U	10000	U	
WS67 CARBAZOLE	UG/L			N/A	O	N/A	O	N/A	O	
WV03 CHLOROMETHANE, BY GC/MS	UG/L	10.0	U	100000	U	100000	U	1000000	U	
WV04 BROMOMETHANE, BY GC/MS	UG/L	20.0	U	200000	U	200000	U	2000000	U	
WV05 VINYL CHLORIDE, BY GC/MS	UG/L	15.0	U	150000	U	150000	U	1500000	U	
WV06 CHLOROETHANE, BY GC/MS	UG/L	15.0	U	150000	U	150000	U	1500000	U	
WV07 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/L	10.0	U	100000	U	100000	U	1000000	U	
WV08 DICHLOROETHYLENE,1,1-	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV09 DICHLOROETHANE,1,1, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV10 DICHLOROETHYLENE, 1,2, TOTAL	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV11 CHLOROFORM, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV12 DICHLOROETHANE,1,2, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV13 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV14 CARBON TETRACHLORIDE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV15 BROMODICHLOROMETHANE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV16 DICHLOROPROPANE,1,2, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV17 BENZENE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV19 TRICHLOROETHYLENE	UG/L	5.0	U	50000	U	50000	U	500000	U	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBX02 VALIDATED DATA

COMPOUND	UNITS	019F		020		021		022		023
WV20 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV21 DIBROMOCHLOROMETHANE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV22 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV24 BROMOFORM, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV25 TETRACHLOROETHYLENE	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV26 TOLUENE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV27 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV28 CHLOROBENZENE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV29 ETHYL BENZENE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV30 ACETONE, BY GC/MS	UG/L	10.0	U	443000	U	100000	U	6040000		
WV31 CARBON DISULFIDE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV32 METHYL ETHYL KETONE (2-BUTANONE)	UG/L	10.0	U	100000	U	100000	U	1000000		
WV34 HEXANONE, 2-	UG/L	10.0	U	100000	U	100000	U	1000000	U	
WV35 4-METHYL-2-PENTANONE	UG/L	10.0	U	100000	U	100000	U	1000000	U	
WV36 STYRENE, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV37 XYLENES, TOTAL, BY GC/MS	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV40 DICHLOROPROPYLENE,TRANS-1,3	UG/L	5.0	U	50000	U	50000	U	500000	U	
WV67 XYLENE, M AND/OR P	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	
WV70 XYLENE, ORTHO	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	
WV72 DICHLOROBENZENE,1,4-(PARA)	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	
WV74 DICHLOROBENZENE,1,3-(META)	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	
WV77 DICHLOROBENZENE,1,2-(ORTHO)	UG/L	N/A	O	N/A	O	N/A	O	N/A	O	
ZZ01 SAMPLE NUMBER	NA	019		020		021		022		023
ZZ02 ACTIVITY CODE	NA	NBX02		NBX02		NBX02		NBX02		NBX02

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 3-NBXO2 VALIDATED DATA

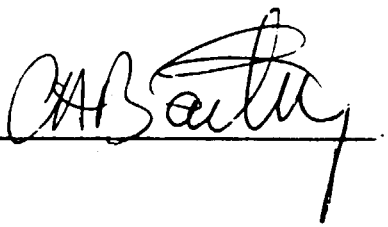
COMPOUND	UNITS	024	025			
WG22 FLASHPOINT (FLAMMABILITY)	C	23.5	36.0			
ZZO1 SAMPLE NUMBER	NA	024	025			
ZZO2 ACTIVITY CODE	NA	NBXO2	NBXO2			

VALIDATED DATA

ACTIVITY NBX02 MARCO PETROLEUM

THE PROJECT LEADER SHOULD CIRCLE ONE - STORET, AIRS, OR ARCHIVE.

CIRCLE ONE: STORET AIRS ARCHIVE

FINAL DATA REPORT APPROVED BY PROJECT LEADER ON 01/22/93 12:00:11 BY 

Kansas Department of Health & Environment

Part V. CONCLUSIONS AND RECOMMENDATIONS

- from SI Final report -

A. Conclusions

1. The potentiometric surface maps indicate the direction of groundwater beneath the MARCO site to be east-southeast. An average gradient was also calculated to be .00796 feet per foot.

2. Contamination of the groundwater in the subsurface has occurred beneath the plant site and is migrating in a south eastwardly direction.

3. The contaminated ground water is comprised of refined petroleum products (benzene, toluene, ethyl benzene, xylenes) and is locted above the unnamed shale member of the Chanute Shale Formation.

4. There are no known domestic wells in the one (1) mile radius downgradient of the site. No apparent immediate threat to private drinking water supply exists.

5. Surface water drainage (uncontaminated and contaminated), from the site, during periods of high precipitation flows downhill (eastward) towards Highway 169. This runoff accumulates along the eastern edge of the site (onsite and offsite).

6. The storage capacity of the oil separator and the pumping capacity of the pumps were underestimated. During periods of high precipitation, runoff exceeds the expected capabilities of the separator/pump facility and overflow occurs.

7. Uncontrolled runoff flows into an ephemeral tributary of Village Creek which empties into Village Creek and the Neosho River.

8. Contamination of Village Creek was documented as early as 1940.

9. Surface water samples collected indicate the presence of hydrocarbons, however, no priority pollutants were detected.

10. The Neosho Madtom (Nutorus placidus) a Kansas endangered species is found in the Neosho River at the confluence of the Neosho with Village Creek.

11. Due to the accumulated contaminated runoff both on site and off site a threat for direct contact of contaminated substances exists for humans, domestic and wild animals.

12. The surface water intakes which supplies drinking water to the City of Chanute is located approximately five (5) stream miles downstream. It does not appear to be in any immediate threat.

13. Soil contamination is present throughout the site.

DEPARTMENT OF HEALTH AND ENVIRONMENT

Reference

September 17, 1986

MEMORANDUM

TO: Bill Thornton

FROM: Norman McKee

SUBJECT: Tank Evaluation on Mid-America Refining Co.

On September 15, 1986 Max Beach, former employee at the refinery, assisted me with the evaluation of the tanks at this facility.

All of the tanks were essentially empty (possibly containing a very small amount of bottom sediments) except as noted in the evaluation, listed below.

TANK NUMBER	USE	VOLUME-BBLS.	TYPE	CONDITION	DIKING	COMMENTS
3	#6 Fuel Oil	160	vert. steel	good	no	no
6	Kerosene	250	vert. steel	good	earthen	no
7	Power Fuel	250	vert. steel	good	earthen	no
8	Regular Gasoline	1500	vert. steel	good	earthen	no
9	Jet Fuel	1300	vert. steel	good	earthen	no
10	Jet Fuel	1500	vert. steel	good	earthen	no
11	Ethel Gasoline	200	vert. steel	good	earthen	no
14	Light Naphtha	500	Horz. steel	good	earthen containment	no
14A	Natural Gas Storage Reservoir	200	Horz. steel	good	earthen containment	no
15	Diesel	1000	vert. steel	good	earthen	no
16	Regular Gasoline	250	vert. steel	good	earthen	no
17	Regular Gasoline	250	vert. steel	good	earthen	no
18	Regular Gasloine	250	vert. steel	good	earthen	no
19	re-cycle	500	vert. steel	good	earthen	no
20	Re-cycle	500	vert. steel	good	earthen	no
21	Kerosene	500	vert. steel	good	earthen	no
22	Re-cycle	500	vert. steel	good	earthen	no
24	#6 Fuel Oil	500	vert. steel	good	none	no
25	#6 Fuel Oil	500	Vert. steel	fair	none	Questionab Area near
27	Diesel	200	Horz. steel	good	none	no
28	Diesel	200	vert. steel	good	none	no
29	Diesel	200	Horz. steel	good	none	no
30	Diesel	200	vert. steel	good	earthen	no
31	Naphtha	60	vert. steel	good	none	no
31A	Naphtha	200	Horz. steel	junk	none	junk
32	Boiler Fuel oil	500	Horz. steel	good	earthen containment	no
33	Ethel Gasoline	600	vert. steel	good	earthen	no
34	#6 Fuel Oil	500	vert. steel	good	none	no
35	Jet Fuel	1200	vert. steel	good	earthen	no
36	Fuel Oil	3000	vert. steel	good	none	no
37	Slop oil	130	vert. steel	good	none	no

38	Naphtha	5000	vert. steel	good	earthen	no
39	crude oil	5000	vert. steel	good	earthen	no
40	Diesel	200	vert. steel	good	earthen	no
41	Naphtha	1000	vert. steel	good	earthen	no
42	Naphtha	1000	vert. steel	good	earthen	no
43	Heavy vacuum gas-oil	5000	vert. steel	good	earthen	no
44	crude oil	10,000	vert. steel	good	earthen	no
45	Fuel Oil	160	vert. steel	good	none	no
46	Regular Gasoline	5000	vert. steel	good	earthen	no
47	Diesel	5000	vert. steel	good	earthen	no
47A	Crude Oil	250	vert. steel	good	none	no
48	Crude Oil	10,000	vert. steel	good	earthen	no
49	Naphtha	5000 ✓	underground Horz. steel	good	earthen containment	no
50	Asphalt	250	vert. steel	good	none	no
51	Anti-Icer	200	vert. steel	good	earthen	no
53	Naphtha	250	vert. steel	good	earthen	no
54	Kerosene	1000	vert. steel	good	earthen	no
56	Fuel Oil	500	vert. steel	good	none	no
57	Asphalt	250	vert. steel	good	none	no
58	slop oil	200	vert. steel	good	none	no
59	Diesel Fuel	1000	vert. steel	good	earthen	no
60	Crude Oil	20,000	vert. steel	good	earthen	no
61	Jet Fuel	4000	vert. steel	good	earthen	no
62	Diesel Fuel	2000	vert. steel	good	earthen	no
63	Asphalt	500	vert. steel	good	earthen	no
64	Asphalt	500	vert. steel	good	earthen	no
65	Asphalt	2000	vert. steel	good	earthen	no
66	Asphalt	2000	vert. steel	good	earthen	no
67	Asphalt	2000	vert. steel	good	earthen	no
68	Asphalt	2000	vert. steel	good	earthen	no
69	Asphalt	34,000	vert. steel	good	partially diked	no
70	Asphalt	1000	vert. steel	good	earthen	no
71	Asphalt	1000	vert. steel	good	earthen	no
72	Asphalt	500	Horz. steel	good	partially diked	no
73	Asphalt	500	Horz. steel	good	partially diked	no
74	Asphalt	5000	vert. steel	good	earthen	no
75	Asphalt	5000	vert. steel	good	earthen	no
76	Asphalt	10,000	vert. steel	good	earthen	no
77	Asphalt	1000	vert. steel	good	earthen	no
78	Asphalt	1000	vert. steel	good	earthen	no
79	Asphalt	10,000	vert. steel	good	earthen	no
80	For Diesel	500	vert. steel	good	none	new-never
81	For Diesel	500	vert. steel	good	earthen	new-never
82	Asphalt	500	vert. steel	good	none	new-used
83	Diesel	800	vert. steel	good	none	no
85	For Chemical	100	vert. steel	good	none	new-never
86	For Chemical	100	vert. steel	good	none	new-never

87	Clay tower	10 est	vert. steel	good	earthen	no
88	Clay tower	10 est	vert. steel	good	earthen	no
89	Crude oil	500	Horz. concrete	fair	earthen	contains fluids
90	Water wash	80	Horz. steel	good	earthen	no
91	Stabilizing unit (8 tanks)	5 to 20	Horz. steel	good	earthen	no
93	Water	250	vert. steel	good	none	no
94	Cuastic (4 tanks)	20-30	vert. steel	good	none	no
95	Bulk Motor oil	15	Horz. steel	good	none	no
97	Bulk Fuel	160	vert. steel	good	none	no
98	Bulk Fuel	100	vert. steel	good	none	no
100	Bulk Fuel	100	vert. steel	good	none	no
101	Bulk Fuel	100	vert. steel	good	none	no
102	Bulk Fuel	100	vert. steel	good	none	no
103	Bulk Fuel	100	vert. steel	good	none	no
104	Regular Gasoline	1000 gal	underground Horz. steel	unknown	NA	no
105	Unleaded	1000 gal	underground Horz. steel	unknown	NA	no
106	Ethel Gasoline	500 gal.	Underground Horz. steel	unknown	NA	no
107	Kerosene	500 gal	Underground Horz. steel	unknown	NA	no
108	Diesel	1000 gal	Underground Horz. steel	unknown	NA	no
109	Diesel	500 gal	Underground Horz. steel	unknown	NA	no
110	Regular Gasoline	500 gal	Underground Horz. steel	unknown	NA	no